DOCUMENT RESUME

ED 174 852 CE 022 556

AUTHOR	Spotts, Robert: And Others
TITLE	Evaluation of the Greenhouse Program 1977-78. Experience-Based Career Education.
INSTITUTION	Far West Lab. for Educational Research and Development, San Francisco, Calif.
SPONS AGENCY	National Inst. of Education (DHEW), Washington, D.C.
PUB DATE	Dec 78
NOTE	236p.
EDRS PRICE	MF01/PC10 Plus Postage.
DESCRIPTORS	Academic Achievement: Basic Skills: Career Education: Dropout Prevention: *Experiential Learning: *High School Students: Parent Attitudes: Potential Dropouts: *Program Effectiveness: *School Community Cooperation: School Holding Power: Student Attitudes: *Vocational Maturity
IDENTIFIERS	*Experience Based Career Education

ABSTRACT

A cooperative effort between the Rockville Centre Free Union School District and the Far West Laboratory evaluated the implementation and outcomes of Greenhouse, an alternative high school program using the experience based career education (EBCE) curriculum. Evaluation criteria included four process objectives and the following student learning objectives: (1) improving reading, writing, quantitative, oral communication and interpersonal skills: (2) improving attitudes toward career planning, learning and education: (3) increasing career-related self awareness: (4) increasing career planning involvement: (5) acquiring career-related information: (6) increasing career decision making ability: and (7) increasing self-reliance. Pretest and posttest data were gathered from an experimental group, comparison group, and self-selected group of students. In addition, information in student files, administrative records, and opinion surveys sent to parents and resource persons were used in evaluating the program. Findings indicated that twenty-two out of twenty-five seniors enrolled in Greenhouse graduated and that some preset criteria were achieved for all but one of the student learning objectives. In addition, both parent and students were found to be strong supporters of the program. (A description of the Far West Laboratory, EBCE model, a sample learning activity packet, and the evaluation instruments are appended.) (LRA)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED174852

EXPERIENCE-BASED CAREER EDUCATION
EVALUATION OF THE GREENHOUSE PROGRAM
1977-78

Robert Spotts

Jill Evenson

Laird Blackwell

December, 1978

CE 022 556

FAR WEST LABORATORY
FOR EDUCATIONAL RESEARCH AND DEVELOPMENT
1855 FOLSOM STREET · SAN FRANCISCO, CALIFORNIA 94103

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Far West Laboratory

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ACKNOWLEDGMENTS

The authors of this evaluation report wish to acknowledge the essential support provided by the Greenhouse Alternative High School staff, and particularly by its Coordinator, Charles Alessi. Also to be recognized are the contributions of Elliot Garfinkel, Principal at Rockville Centre's South Side High School. These individuals facilitated the extensive efforts of formation and testing of treatment and comparison groups. Equally as important, they met together and with administrators within the Rockville Centre Free Union School District to establish a set of objectives that represent that district's expectations of Greenhouse.

Several Far West Laboratory staff members made substantial contributions to the assembly of this report. Judy Cook drafted the Executive Summary from the contents of the body of the report and also made the final edit. Paul Hood reviewed the report draft and made several valuable suggestions for improving the presentation of findings. Woodrow Clark, Karen Chatham, and Ralph Baker contributed constructive reviews of an early draft. Juliette Van prepared the manuscript and Lane Olson prepared the graphics.

During the evaluation George Rusteika, Project Director, and Ted Kildegaard provided valuable insights into school and district operations that materially improved the evaluation design. Michael Webb, through a comprehensive search of Greenhouse files, collected data on students' projects and community activities. Kathleen Brown-Taylor prepared test data for processing and Nancy Banker helped develop the scoring scheme for open-ended items on students' career planning.

The project presented or reported herein was performed pursuant to a grant from the National Institute of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position of policy of the National Institute of Education, the Department of Health, Education, and Welfare, or the Far West Laboratory for Educational Research and Development, and no official endorsement by these agencies should be inferred.

FOREWORD

This evaluation report describes the cooperative effort between the Rockville Centre Free Union School District and the Far West Laboratory in evaluating the implementation and outcomes at Greenhouse, an alternative high school program using the Experience-Based Career Education (EBCE) curriculum. It should be of special interest to educators and administrators who are considering the implementation of EBCE because it (1) presents a comprehensive assessment of EBCE as a locally adapted and implemented program, and (2) demonstrates how a planned program evaluation can result in the crystallization of local objectives and expectations of the innovation. It is the sixth in a sequence of annual publications which report evaluation findings on EBCE programs that are based upon the model developed by Far West Laboratory.

The series of EBCE evaluation activities spans the entire process of systematic educational development--formative and summative studies which have guided the Laboratory staff and the Federal program managers (initially at USOE, and since 1972 at NIE) in early program conceptual decisions, instructional-system design decisions, program modifications, documentation-replication, dissemination, adaptations, and the efforts to institutionalize EBCE in the "mainstream" of education. A review of these activities reveals that the various phases of development were not sequential, neither were they in parallel; rather, they were interactive. Additionally, there was some repetition of activities as the number of field participants increased.

Though this report is the last that will be done as part of the current EBCE development efforts, Far West Laboratory, however, does have a commitment to continued research, development and field service in experience-based learning, and is actively seeking financial support for various studies of longer-term effects of a variety of student-centered and community-based learning activities, including the now numerous EBCE sites. We believe that there is a vast "laboratory" in the many communities of the nation--a laboratory in which thousands of youth, school staff, and working adults are participating in an educational movement that is causing profound systemic changes in our educational system--in its processes and programs for preparing youth for productive adult living. In the future, then, we anticipate engaging in applied research which will help practitioners better understand experience-based learning from the perspective of its participants.

George P. Rusteika
Chairman, Department of Adult
Satisfaction and Productivity

TABLE OF CONTENTS

Page No.

ACKNOWLEDGMENT ii

FOREWORD iii

LIST OF TABLES, FIGURES, AND EXHIBITS. vi

EXECUTIVE SUMMARY. xi

1. INTRODUCTION 1

Description of Greenhouse. 1
History of Greenhouse. 2
Description of Student Population. 5
This Evaluation in Perspective 5

2. EVALUATION PLAN. 9

Interactive Development of Objectives. 9
Program Goals and Objectives 10
Method for Process Evaluation. 13
Method for Student Outcomes Evaluation 13

3. PROCESS EVALUATION 19

Perspective. 19
Findings 20

4. EVALUATION OF STUDENT LEARNING OUTCOMES. 47

Groups Used in the Evaluation. 47
Findings 55

5. CONCLUSIONS. 129

BIBLIOGRAPHY 135

APPENDIX 1: Description of the FWL/EBCE Model 139

APPENDIX 2: Sample Learning Activity Packet,
Developed by the Greenhouse Staff. 145

APPENDIX 3: Instruments and Forms 155

LIST OF TABLES, FIGURES, AND EXHIBITS

Page No.

EXHIBIT 1. Independent Ratings of the Congruence of Greenhouse with the Ideal FWL/EBCE Model, Made by Two FWL Staff Members after Separate Visits during Spring, 1978 7

TABLE 1. Student Learning Objectives Data Collection Plan 16

TABLE 2. Comparison of the Unexcused Absences during 1977-78 for Students Enrolled One or More Semesters in Greenhouse with Their Corresponding Records for 1976-77 21

TABLE 3. Absences during 1977-78 of New (First-Year) Students and Those Students Declining Entry to Greenhouse after Referral 23

TABLE 4. Number of Projects Completed by Students for Academic Credit, 1977-78. 28

TABLE 5. Distribution of Percent of Total Credits Earned by Individual Students through Projects Analyzed by Length of Greenhouse Enrollment, 1977-78 30

TABLE 6. Distribution of Credits Earned by Greenhouse Students through Project and Non-project Activities, 1977-78. 31

TABLE 7. Frequency of Supplementary Activities for Academic Credit by Students, 1977-78. 33

TABLE 8. Students' Responses on Items Relating to How Well They Liked Greenhouse and How It Meets Their Needs, June 1978 37

TABLE 9. Parents' Responses at End-of-Year to Questionnaire Items Relating to Their Support of Greenhouse. 40

TABLE 10. Resource Persons' Responses to Items on the Mail-Questionnaire, June 1978 41

TABLE 11. Comparison of Total Resource-Person Mailing with the Set of Returns by Resource Persons Having Participated with Greenhouse Students 43

Page No.

TABLE 12. Comparison of Pretest and Posttest by Student Groups within Greenhouse 49

TABLE 13. Distributions of Greenhouse and Comparison Students on Demographic Variables. 51

TABLE 14. Plans of Entering Students and Comparison Students for One Year after High School. 53

TABLE 15. Responses of First-Year Greenhouse and Comparison Students to the Question "How did you like school last year?". 54

TABLE 16. Frequency Distribution of Scores by Greenhouse Graduating Seniors on SRA Reading Skills Test. 57

TABLE 17. Distribution of Gain Scores for Graduating Seniors on the SRA Survival Skills Test in Reading 59

TABLE 18. Statistics for All Students on the Science Research Associates Survival Skills Tests. 60

TABLE 19. Frequency Distribution and Statistics of Scores on the SRA Reading Skills Test. 61

TABLE 20. Students' Ratings of Amount Learned in the Area of Basic Skills 63

TABLE 21. Frequency Distribution of Scores by Greenhouse Graduating Seniors on SRA Mathematics Skills Test. 65

TABLE 22. Distribution of Gain Scores for Graduating Seniors on the SRA Survival Skills Test in Mathematics 67

TABLE 23. Frequency Distribution and Statistics of Scores on the SRA Mathematics Skills Test. 69

TABLE 24. Frequency Distribution for Graduating Seniors on the EBCE Writing Scale 73

TABLE 25. Frequency Distribution and Statistics of Writing Scores 75

TABLE 26. Relationship of Career Choices of Seniors to Values, Abilities, and Interests 78

TABLE 27. Students' Ratings of Opportunities to Increase Self-Awareness through Their School Program. 80

Page No.

TABLE 28. Frequency Distribution of Mean Scores on Assessment of Career Development-Career Involvement Scale. 82

TABLE 29. Means of First-Year Greenhouse and Comparison Students on the Assessment of Career Development-Career Involvement Scale 84

FIGURE 1. Comparison of Pretest and Posttest Scores of First-Year Greenhouse Students and Comparison Students on the ACD Career-Involvement Scale. 85

TABLE 30. Means of First-Year Greenhouse and Comparison Students on the Attitude toward Careers Scale 87

TABLE 31. Range of Career Information Demonstrated by Greenhouse Students 90

EXHIBIT 2. "Knowledge of One Job" Rating Scale--Used by FWL Staff to Judge the Apparent Depth of Knowledge Held by a Student about the Job He or She Named 92

TABLE 32. Responses to Item: "Name a Job or Career That You Know Something About" 94

TABLE 33. Responses to Item: "How Did You Get the Information That You Now Have about This Career or Job?". 95

TABLE 34. Responses to Item: "Name Three Things That You Could Do to Learn More About This Career or Job". 96

TABLE 35. Knowledge of One Job Demonstrated by Greenhouse and Comparison Groups. 98

TABLE 36. Ratings of Learning in the Area of Career Development/Awareness 99

TABLE 37. Post High School Planning by Greenhouse Seniors. 102

TABLE 38. Career Choices of Twelve Greenhouse Seniors at Time of Leaving the Program. 103

TABLE 39. Students' Plans for Work and Education for One Year After High School. 105

TABLE 40. Students' Responses to the Question: "What Best Describes Your Current Planning for the Future?" 107

Page No.

TABLE 41. Complexity of Students' Career Plans at End of Year 108

TABLE 42. Frequency Distribution of Greenhouse Students' Ratings of Their School Program 111

TABLE 43. Students' Ratings of Last Year's and This Year's Programs on the School Opinion Scales. 112

FIGURE 2. Comparison of Scale Scores on the School Opinion Survey for EBCE and non-EBCE Groups. 114

TABLE 44. Students' Self Report on Attitude Toward School over Three Periods of Time. 115

FIGURE 3. Graphic Presentation of First-Year Greenhouse and Comparison Students' Self-Reported Attitude Toward School 116

TABLE 45. Students' Opinions of Ways That Their School Was Helpful. 118

TABLE 46. Students' Ratings of Amount Learned in the Areas of Personal and Interpersonal Growth 120

TABLE 47. Ratings by Resource Persons of Student Opportunities for Personal and Interpersonal Growth at Resource Sites 121

TABLE 48. Students' Attitudes Toward Self and Others from the Student Attitude Survey 124

TABLE 49. Ratings by Resource Persons of Students' Behavior at Resource Sites 126

TABLE 50. Students' Ratings of Opportunities for Self-Reliance in Their School Program 127

TABLE 51. Summary of Program Outcomes by Objectives 131

9

EXECUTIVE SUMMARY

THE GREENHOUSE PROGRAM

Greenhouse is an experiential, community-based academic program for senior high school students. It is a comprehensive program in that it can provide students with all requirements and electives needed for high school graduation. The program has a special emphasis on students not achieving in the regular school, as noted by its two stated goals:

(1) to provide a new educational setting for those students who might otherwise fail or drop out of traditional school -- a setting in which they can experience successful learning, and

(2) to provide a community-based program for students who prefer an "action-learning" alternative to the traditional high-school program.

It is a replication of the Far West Laboratory's version of Experience-Based Career Education (EBCE); however, adaptations to meet local conditions have been made by Greenhouse staff in consultation with Far West Laboratory (FWL).

WHAT DID GREENHOUSE ACCOMPLISH?

During the 1977-78 school year, Greenhouse demonstrated two exceptional accomplishments with disaffected youth (those on the verge of dropping out of regular school) who transferred to the alternative program:

- It helped them to reestablish their progress toward high school graduation.
- It reversed their negative attitudes toward school and learning.

During this school year, most students in Greenhouse, whether or not judged as disaffected at entry, evidenced the following:

- They learned about potential jobs/careers through planned activities at worksites.
- They increased their understanding of their own interests, abilities, and values and began to apply this understanding in the process of career choice.

- They exercised the several basic skills of writing, reading, oral communication, and computing.
- They improved their interpersonal skills: communicating with peers and adults, accepting the different ideas and backgrounds of individuals, and logical problem-solving.
- They increased in responsible, self-reliant behavior.

In summary, Greenhouse students grew in the skills required to make the successful transition from youth to productive adulthood; grew in fact, significantly more than did students in the regular school who were used in a comparative evaluation. Greenhouse gained the acceptance and support of diverse members of the business community as well as the approval of parents of participating students.

WHAT EVIDENCE BACKS THESE CLAIMS?

The Greenhouse program was evaluated in terms of its success in meeting locally developed process objectives and student-learning objectives. These two areas required somewhat different methods of evaluation; however, all objectives were evaluated according to pre-set criteria and standards.

For data analysis, several groups were formed. The 1977-78 referred, experimental group was comprised of new students who were referred to Greenhouse by teachers or counselors as disaffected, were informed about the program by Greenhouse staff, and who entered the program at the outset of or during the 1977-78 school year. The comparison group included those students who were referred by teachers/counselors at the high school and informed about the Greenhouse program by its staff, but who declined to enter the program. The self-selected group was comprised of new students who chose Greenhouse without having been referred by counselors or teachers. Greenhouse students who were returning from the previous year formed a group separate from the principal analysis, though certain analyses utilized the entire Greenhouse population.

Data collection took the form of pretests at the beginning (fall, 1977) and posttests at the end (spring, 1978) of the year. Individual students entering or leaving the program in the middle of the year were tested upon entry and/or exit. All testing was done by Greenhouse staff following procedures established by FWL. In addition, information in student files, administrative records, and opinion surveys sent to parents and resource persons were used in evaluating the program. Brief documentation in support of the claims of the preceding section follows.

Establishing progress toward graduation. Of all Greenhouse students, 62% met or exceeded the normal rate of two earned credits per semester; 45% of the referred group and 89% of the self-selected, volunteer group met this criterion. Of all Greenhouse students, 52% earned more credits than they did during a comparable period of the previous year. Of the 25 seniors enrolled in Greenhouse, 22 graduated. Of nine referred students who entered Greenhouse after extreme dissatisfaction and non-attendance at the traditional school, seven successfully completed the year's work; two were seniors and earned sufficient credits to graduate.

Improving students' attitude toward learning. Greenhouse experimental students significantly improved their attitudes toward education in general and their school program in particular from pretest to posttest; comparison-group students showed little change in attitude. Greenhouse students responded positively to the opportunity to plan their own learning; developed positive attitudes toward staff and peers; and felt that Greenhouse had been quite helpful in preparing for work, college, and the future in general.

Learning about jobs and careers through planned activities in the work place. Greenhouse introduces students to work settings through community learning activities and provides academic credit for these activities, as well as for supplemental workshops, tutorials, and other courses. Of a total of 51 Greenhouse students, 40 received academic credit for community resource learning activities while 49 received academic credit for supplementary activities.

Community-based activities in the Greenhouse program call for orientation experiences at several worksites and for a few longer, in-depth experiences with resource persons in the workplace. Thirty-one percent of Greenhouse students were involved in at least one in-depth (40 or more hours) experience and two or more shorter worksite experiences each semester.

Support for superior learning by Greenhouse students in the area of career knowledge is shown in the responses to an open-ended item on a posttest questionnaire asking for input on knowledge of one job. As a group, Greenhouse students listed a wider variety of jobs and provided information of greater depth and accuracy about the jobs they named than did the comparison group students. They had learned about these jobs mainly through active participation and observation.

Incorporating an understanding of their interests, abilities, and values in the process of career choice. Twelve Greenhouse graduating seniors were asked to give their potential career choices and, regarding one possible choice, to answer, "Why do you believe that this (career) is the best choice for you? How does the career(s) relate to your values, abilities, or other goals?" Almost all students related their tentatively chosen career to their interests, goals, and abilities. One student was aware that he/she had not yet been able to match interests and career as yet, while another student was well aware that the career he/she was pursuing was not a good match for interests. All students, except for one who did not respond, showed a definite awareness of the possibility of choosing careers that matched student interests, goals, and abilities.

Ten other graduating students, who did not complete the above question, were rated by Greenhouse teachers as to the degree that the student has examined career options in terms of his/her values and preferred lifestyle. They rated nine out of the ten students as passing this item. They felt that all ten of the students were aware of what their current values were and what they cared most about, and that eight out of ten had examined abilities in relation to alternatives that they were considering.

Improving students' basic skills. The competency-based Science Research Associates (SRA) Survival Skills Test was used to test students' reading and mathematics ability. Of the group of 22 Greenhouse graduating seniors, 15 attained a score of 85% on the SRA post reading test, a substantial increase over pretest results. Students in the experimental, referred group showed greater improvement and subjectively rated their own improvement higher than did those in the comparison (non-Greenhouse) group. The Greenhouse program appears to have been helpful in moving students from middle to upper levels of competence on the reading test, though growth was less for referred than for self-selected students.

Concerning the SRA math skills test, 91% of Greenhouse graduating seniors show no appreciable deterioration in skills while 36% showed appreciable gains. Again, experimental Greenhouse students showed greater improvement and perceived their skill growth as greater than did comparison group students.

The Oral Communication Rating Form was used by Greenhouse staff and resource persons to rate Greenhouse graduating seniors on oral communication skills; all seniors passed the test. In addition, Greenhouse referred students gave significantly higher self-growth ratings in oral communication than did comparison group students (means of 3.5 and 2.5, respectively, on a 4-point scale). These two measures, then, support each other; Greenhouse seniors felt they had learned a lot about oral communication, and staff saw them as competent in this area.

Greenhouse staff rated graduating seniors on writing skills on the basis of written essays. Of those students for whom data were available, 80% received passing scores. Students in the referred group gained more from pre to posttest than did comparison group students. Greenhouse students also felt they improved their writing skills at least as much as comparison group students felt they had improved theirs (means of 2.8 and 2.7, respectively, on a 4-point scale).

Developing students' interpersonal skills. As measured by self-report, Greenhouse students as a whole felt they improved greatly in communicating and in working cooperatively with peers and adults as well as in increasing their tolerance of the different ideas and cultures of other people, in sharp contrast to the lower ratings of growth reported by comparison group students. Resource persons (26 of 33 respondents) agreed that the community-based program provided much in the way of opportunities to grow in this area. Activities mentioned by students and resource persons on end-of-the-year questionnaires included students talking about career and personal issues with adults at worksites as well as participating in actual job activities. Greenhouse students' ratings of the item, "School helped me to get along with others," substantially improved from pretest to posttest.

Increasing students' self-reliance. On the basis of responses to numerous self-report items, Greenhouse students as a whole felt that they had been able to demonstrate self-reliance and their ability to function responsibly and independently. The differences in mean ratings between the groups of referred and comparison students on self-report items asking for the degree of self-reliance required by their programs were highly significant. Resource persons who had worked with students at community sites also reported that most Greenhouse students exhibited above average qualities in behavior, interest in learning, self-responsibility, reliability, and time-management.

Gaining participants' acceptance and support. There is evidence that the Greenhouse program is seen as successful by students, by their parents, and by community resource persons. Students' perceptions of Greenhouse were collected by an end-of-the-year questionnaire (or upon exit, if sooner) and showed strong, consistent approval. Ninety percent of responding students indicated that they would elect EBCE again should they have the chance. The program was rated successful in the area of basic skills by 81% and in that of academic subjects by 68% of the students. On a five-point scale, students gave the following mean ratings to various aspects of the program: liked community-based program, 4.5; higher motivation than in previous school programs, 4.3; learned about careers, 4.1; learned to plan for future career, 4.3; learned about oneself, 4.5; and learned to make decisions, 4.4.

A low (23%) return rate of survey questionnaires made the true degree of parental support difficult to access. Approximately 67% of the respondents approved of the Greenhouse program; 20% were critical of the program, while 13% were undecided.

At the end of the school year, a Resource Opinion Survey was mailed to all resource persons who had agreed to participate with students. Thirty-seven persons who had actually worked with students returned the completed questionnaire. Respondents felt that participation was valuable for them (83%), for their organization (84%), and for the students (94%). Eighty-one percent indicated that they would continue their involvement in EBCE, and 83% would recommend participation to other organizations.

HISTORY OF GREENHOUSE

Established in 1974 as an adjunct program to Rockville Centre's South Side High School, Greenhouse was initially created to serve students identified by school staff as "disaffected," that is, lacking in motivation, not succeeding in the traditional school, and in danger of not completing high school. Following presentations by Far West Laboratory (FWL) and negotiations regarding school staff training, the Rockville Centre district changed the original Greenhouse curriculum by adopting the FWL/EBCE model, beginning in September of 1976.

The beginning of the second year (1977-1978) of FWL/EBCE involvement in Greenhouse evidenced several changes in the program. New strategies to help students make the transition from the traditional high school to Greenhouse were implemented. In addition, enrollment restrictions were loosened to allow volunteer students, as well as those referred by traditional school staff as disaffected, to attend Greenhouse. This change served the needs of a new group of students who preferred an alternative to the traditional school and provided positive role-models for the referred students. Volunteers were to constitute a maximum of 30% of the student population; 70% was reserved for students referred by traditional school staff.

The adoption of the FWL/EBCE model has facilitated the realization of Greenhouse goals through the use of a systematic, accountable curriculum that combines academic learning, career exploration, and the strengthening of interpersonal skills. The instructional program is comprised of student-designed projects which focus on a core of "process skills" essential for life-long learning and "basic skills" necessary for the student to function effectively in adult society. Learning through projects is supplemented where necessary by workshops, tutorials, and work-for-pay cooperatives.

Greenhouse staff members function as learning coordinators, assisting students with basic skills, giving advice regarding student projects, locating and orienting community resource persons, and keeping program records. This multi-faceted facilitation role is part of a design which requires students to take responsibility for their own learning through the design and completion of learning projects that include career exploration, academic learning, and exercise of basic skills.

During the 1977-1978 school year, Greenhouse staff consisted of three full-time and one part-time professionals plus one part-time clerk. The average student enrollment for the year was approximately 50 students, who came from every local neighborhood in Rockville Centre. Distribution of students by sex and ethnicity was representative of the total local school population.

CONCLUSIONS

Taken as a whole, the findings indicate that the FWL/EBCE program has been quite successful in meeting the Greenhouse goals of providing an effective learning situation for disaffected students and for those seeking an alternative to traditional school. The use of pretest/posttest measures; comparisons between Greenhouse students and the non-Greenhouse group; and input from parents, staff, and resource persons assured a complete picture of the Greenhouse program.

This program provided well-defined learning options to students who were not succeeding in or who desired a change from traditional high school. Students who might otherwise have ended their education prematurely reversed their negative attitudes, stayed in school, earned academic credit, and progressed or graduated with their class. The majority of students, parents, and resource persons involved in Greenhouse supported the program. Students were very enthusiastic about the chance to take charge of their own learning process and about the program's opportunities for growth in interpersonal skills (especially in communicating with adults) and self-reliance.

In general, students who themselves opted for Greenhouse without counseling by high school staff showed more progress in basic skills achievement than did those students referred to Greenhouse by counselors or teachers. Even so, referred (experimental) students perceived their progress in both basic skills and career development as greater than did comparison-group students. Greenhouse students entered the program to get career information and to make plans for the future; they appeared at year's end to have gained a broader orientation toward careers and jobs. This was accomplished without the loss of growth in basic skills.

The experiential learning strategy of the Greenhouse program enabled a diversity of high school students to change their negative attitudes about learning and to better prepare themselves for their future in work and education.

1. INTRODUCTION

DESCRIPTION OF GREENHOUSE

Greenhouse is an "alternative" secondary program (grades 10-12), established by the Rockville Centre Free Union School District in 1974 as a part of South Side High School. It occupies its own facility in the central business district of the village of Rockville Centre, Long Island.* Greenhouse is a full-time program operating during the normal school year (September to June). Greenhouse was implemented by the Rockville Centre Union Free School District to provide a new educational setting for those senior high school students who might otherwise fail or drop out of traditional school--a setting in which they could experience successful learning. After the program was in operation for two years, the scope of Greenhouse was enlarged to provide a community-based program for students who prefer an "action-learning" alternative to the traditional high school program.

The Greenhouse curriculum is based upon the Far West Laboratory Model of Experience-Based Career Education (FWL/EBCE)**. Students at Greenhouse learn daily through self-designed projects that combine academics with career experience. The instructional program focuses on a core of "process skills" (inquiry, problem-solving, and decision-making) and "basic skills" (oral and written communication, reading, and computing) essential for independent, life-long learning. The school draws upon the knowledge and capabilities of volunteer persons in the community in a student/mentor relationship. Most staff members function as learning "coordinators" (rather than teachers), advising and counseling students as the students design and accomplish their own projects. Additional staff members locate and orient community "resource" persons, work with students in the area of basic skills, and keep program records. The 1977-78 program staff consisted of three full-time teachers, one part-time (4 hours per day) teacher, and one part-time (4 hours per day) records clerk. One full-time professional member functioned as program director and community resource developer as well as learning coordinator for five students. Another functioned as learning coordinator for 25 students. The third full-time staff member served as skills specialist as well as learning coordinator for seven students. The part-time professional staff member served as learning coordinator for 15 students.

---

* Beginning with the 1978-79 school year, Greenhouse will occupy one building of South Side High School. This change was motivated by a general reduction of expenditures within the school district.

**Appendix 1 presents a summary description of the learning processes of FWL/EBCE. For complete documentation, see Far West Laboratory for Educational Research and Development, EBCE Project. Operational Handbooks. San Francisco: FWL, 1976.

HISTORY OF GREENHOUSE

During its first two years (1974-75, 1975-76), Greenhouse was not open to every student. Modeled upon the City-As-School in Brooklyn, New York, it was initially designed only for "disaffected" students, that is those who, in the judgment of South Side High School teachers or counselors, were in danger of not completing high school. For many of those students, Greenhouse was a last resort; they arrived feeling pressure, not choice, to remain in school. During its first two years of existence Greenhouse experienced an image problem in the district, stemming partly from the identification process used to recruit its homogeneous group of "disaffected" students and partly from the absence of an effective management system for in-school and community-site activities.

During that period, resources (people and organizations) were recruited in the community to provide learning experiences for Greenhouse students. For each resource recruited, a course description was developed projecting what students might learn from that resource. The set of course descriptions comprised the school's course catalog. Students could sign up for these courses and after satisfactory completion, receive credit toward graduation. These courses in the community were available to students during the afternoon. A core program in math, reading, writing, values clarification, social studies, business, and other areas were offered each morning of the school week.

In the Spring of 1976, the principal of South Side High School considered Far West Laboratory's Experience-Based Career Education (FWL/EBCE) program as a method of instilling a more systematic, accountable curriculum within

Greenhouse. During February 9-13, 1976, FWL/EBCE field-service consultants visited Greenhouse to help its staff study EBCE and determine if FWL/EBCE could be used, in whole or in part. A detailed overview of the FWL/EBCE model and examples of student learning projects were presented. Greenhouse staff members were particularly interested in the procedures for resource development, in potential evaluation methodology, and in the provision for basic skills development. At that time the program leader and staff received introductory training in resource development. After the Greenhouse staff became well-acquainted with FWL/EBCE, it recommended adoption of the full model. The school administration and school-board subsequently concurred with Greenhouse staff* and in March, 1976 plans were made for Greenhouse to become an EBCE "pilot" program beginning in September, 1976 (its third year of operation).

A second visit was made by FWL field service consultants during June 21-25, 1976. Implementation tasks were identified by local staff members and a study was initiated in order to determine future program needs and identify potential problems. Greenhouse staff began preparing resource guides. FWL field service staff provided review and critique of program plans and progress.

The transition to EBCE was complicated by several problems. Many of the original students were not very motivated to learn or to complete high school. They had not been exposed to FWL/EBCE, and only a few were enthused about the opportunities it provided. Consequently, few behaved in a manner that would achieve success in the new program. Staff experienced difficulty in getting these students to plan projects and visit resources in the community. As a result, during the first year, many students did not earn very much credit. Several of the students who attended Greenhouse before its adoption of EBCE strongly disapproved of the change. The staff therefore planned several methods for the second year of adoption to help students make the transition to EBCE:

---

* Richard Byers, Superintendent of Rockville Centre Union Free School District wrote to FWL, "as a result of information relayed to me through Dr. Freschet (then Principal of South Side High School), I have made a decision to have our alternative school adopt the Far West model of Experience-Based Career Education. Please accept this letter as a request for assistance in accomplishing this adoption," (March 1, 1976).

1. A schedule was instituted for the first cycle* which gave students the option (and security) of taking workshops, a mode they were used to. Two limitations were imposed so that students would have to move toward an experience-based learning program. First, with the exceptions of English and math, it was not possible for students to earn a semester's course credit only by a workshop. Students were required to supplement workshop activities by planning and completing a community-based project. Second, workshops were phased out as the year progressed so that by the last cycle, there would be workshops only for basic English and math.
2. Since a gradual transition from the workshop mode to experience-based learning was planned, orientation for new students was reduced from the three weeks recommended by FWL to a few days.
3. During the summer, 1977 staff developed Learning Activity Packets (LAPs) to aid those students who were having trouble planning projects. A LAP provides sample projects and a plan for students to follow when working with resources in the community. Forty-five LAPs were written and keyed to life skills, career development, and content areas as well as to resource people and organizations on file (see Appendix 2 for a sample LAP).
4. Periodic visits of FWL field service staff were requested to provide assistance in the implementation of projects seminars and the development of credit assignment procedures.

The implementation of these strategies resolved most of the problems encountered. Important as well was that enrollment was opened to a limited number of South Side High School students (volunteers) seeking EBCE as a curriculum. This lessened the stigma attached to attending Greenhouse and, in addition, exposed low achievers in the program to more motivated higher achievers who served as role-models.

---

* A cycle is a 10 week quarter, 2 of which comprise a semester. Workshops offered at Greenhouse were of 10 weeks duration, and credits earned were reported at the end of each cycle.

DESCRIPTION OF STUDENT POPULATION

Although Greenhouse is called an "alternative" high school, during its first two years (1974-76) it was open only to referrals (i.e., students judged by South Side High School teachers and counselors as "disaffected" by regular school). The FWL/EBCE curriculum was adopted at the outset of the third year (1976-77). In order to serve the needs of other students and to provide positive role-models for those students already enrolled, the parent high school principal and the Greenhouse director agreed that beginning with the 1977-78 school year Greenhouse would be opened to a limited number of volunteer students (up to 30% of the student body). The original mission of Greenhouse, to provide an alternative for disaffected students, was preserved by reserving the majority of enrollment (70%) for such referrals. During 1976-77, the average enrollment of Greenhouse was approximately 30 students; all were referrals. During the 1977-78 school year, the average enrollment at Greenhouse was approximately 50 students. These students represented every local neighborhood in Rockville Centre. The distribution by sex and ethnicity was representative of the local school population (52% male, 48% female; 90% white, 10% black). A demographic summary of end-of-year student population of Greenhouse is contained in Table 13 of Section 4 (p. 51).

THIS EVALUATION IN PERSPECTIVE

Certain outcomes resulting from learning experiences are projected for students in programs based on the FWL/EBCE model. These are:

1. Students will progress in career development, including career awareness and planning.
2. Students will progress in personal and interpersonal development, including: clarification of their current interests, abilities, and values; self-reliance, ability to function independently and responsibly; and ability to work constructively with others.
3. Students will develop a realistic understanding of the role of school and education in career development.
4. Students will make progress in development of basic skills.

It was the original goal of the Greenhouse staff to implement the FWL/EBCE model exactly as documented. In actuality, the staff modified, augmented, and omitted procedures within the model to adapt it to local conditions. For example, in response to the previously mentioned difficulty in getting students to plan projects and visit resources in the community, a workshop schedule was instituted during the first cycle of EBCE that provided students with a familiar learning mode. The workshops were phased out as the year progressed. This strategy was used (as previously mentioned) during the second year (1977-78) to provide easier orientation for students to the self-motivated learning required by FWL/EBCE. Another adaptation was the development of prototype projects within the community provided through Learning Activity Packets (LAPs) intended by staff to reduce the difficulty of project planning and to initiate the use of resources in the community by the students.

Far West Laboratory staff members providing technical assistance to the program rated the fidelity of Greenhouse to the ideal Far West Lab EBCE Model at the end of the second year of adoption. The ratings are shown in Exhibit 1. These ratings indicate that although Greenhouse shows substantial adaptation, it can be considered a replication of the FWL/EBCE Model.

In 1976-77, data were collected by Far West Laboratory to determine the effectiveness of stabilized, high fidelity, locally-controlled FWL/EBCE programs in inducing those outcomes (above) that were intended by the program developer. The findings were largely supportive; the evaluation process and results were reported in Experience-Based Career Education: Evaluation of Outcomes At Three Pilot Programs, 1976-77. For this evaluation, the projected outcomes set forth by the program developer (FWL) have been replaced by the outcomes desired by the Rockville Centre Free Union High School District. Thus, Greenhouse herein is not evaluated as a replication of the Far West EBCE Model, but as a district's innovative program designed to serve local needs and to meet locally-established objectives.

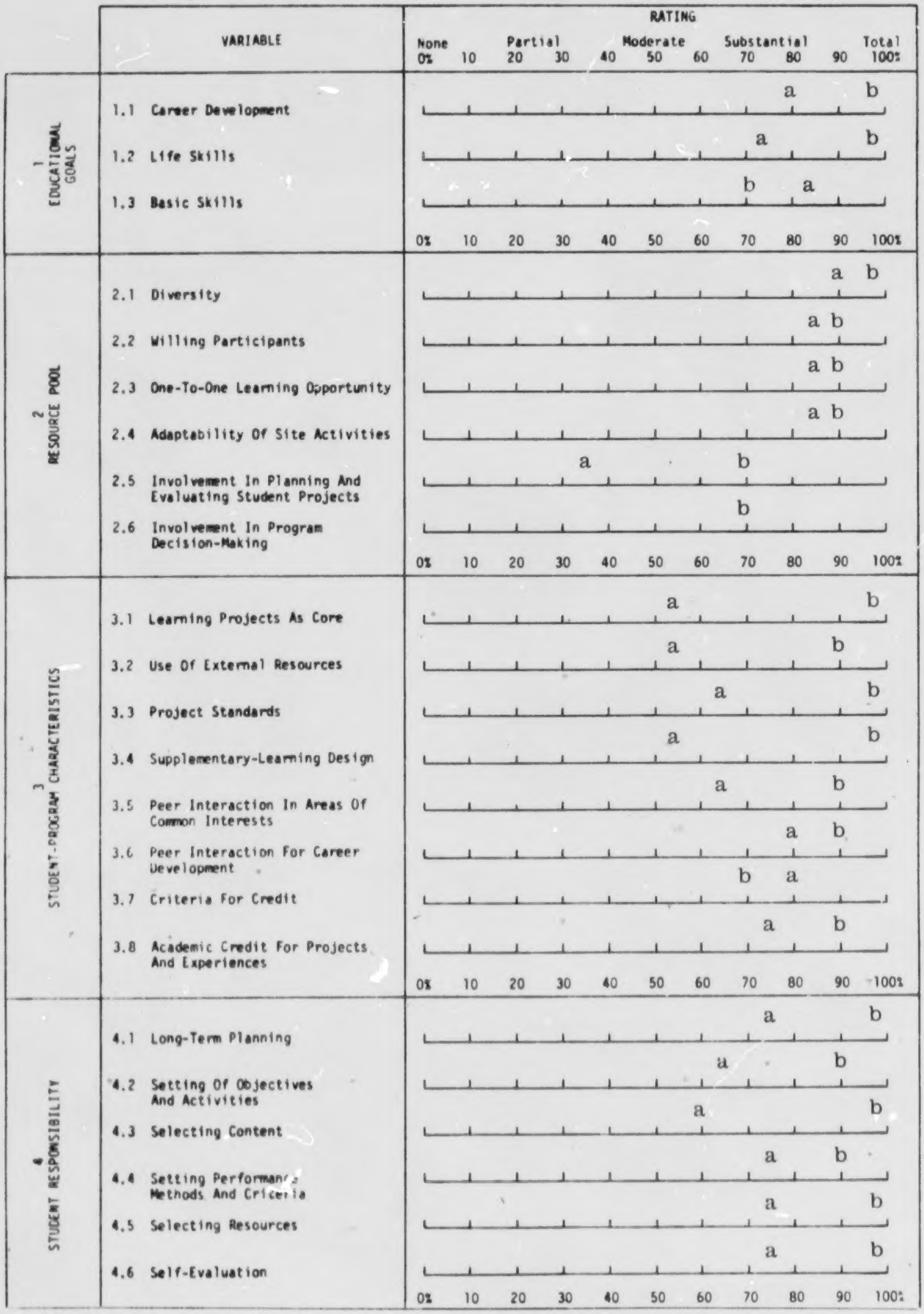


Exhibit 1. Independent ratings of the congruence of Greenhouse with the ideal FWL/EBCE Model, made by two FWL staff members (see a and b above) after separate visits during Spring, 1978.

2. EVALUATION PLAN

INTERACTIVE DEVELOPMENT OF OBJECTIVES

The set of goals and objectives following represent the purpose and scope of the Greenhouse Program for the school year 1977-78. They were developed jointly by Far West Laboratory (FWL) and the Rockville Centre Union Free School District and form the basis for the evaluation of Greenhouse.

A preliminary plan for evaluation at Greenhouse during 1977-78 was described by Far West Laboratory in June, 1977 in the FWL/EBCE Operating Plan, 1977-78. In that plan FWL proposed to address a series of student-outcome questions relevant to full-time programs based on the FWL/EBCE model. During summer and early fall of 1977, discussions between FWL evaluation staff and the Greenhouse staff determined that a more meaningful evaluation would be based upon locally-developed program objectives. However, such objectives did not exist at that time in written form. Using information from the Greenhouse leader and through their previous, extensive contacts with District staff, FWL staff drafted a preliminary set of objectives. Greenhouse staff revised and augmented the set to develop a comprehensive series of program objectives. Appropriate personnel within the school district reviewed the set and affirmed its congruence to district expectations. The resultant set of program objectives focuses on intended student outcomes (i.e., career development, interpersonal skills, attitudes toward education, and basic skills) but also addresses the area of program process.

The restructuring of the Greenhouse evaluation has increased the usefulness of the evaluation by relating all data collected to accepted local objectives rather than to general FWL/EBCE objectives. Thus the evaluation has avoided becoming a repetition of previous evaluations of FWL/EBCE programs (see the bibliography for this report).

PROGRAM GOALS AND OBJECTIVES

Greenhouse has two primary goals:

1. To provide a new educational setting for those students who might otherwise fail or drop out of traditional school--a setting in which they can experience successful learning; and
2. To provide a community-based program for students who prefer an "action-learning" alternative to the traditional high-school program.

Process Objectives

To assure direction toward its goals, Greenhouse established a set of objectives stating its intended status at the end of the 1977-78 school year:

Objective 1: Keeping students in school. Students will show improved school attendance after entering Greenhouse.

Objective 2: Establishing progress toward graduation. Students will show progress toward graduation at least at a normal rate.

Objective 3: Providing student with a community-involved curriculum that blends career exploration and academic learning. The curriculum will be developed around learning activities in the community that expose students to actual work settings, but will offer students opportunities for earning academic credit through experiential and traditional modes.

Objective 4: Gaining participants' acceptance and support. Students, parents of students, and participating resource persons will support Greenhouse as a valuable program for students.

Student Learning Objectives

In addition to the objectives related to providing "disaffected" students with an educational experience they will value and attend, there are also certain learning objectives for students concerning their career awareness, career planning, career decision-making, and interpersonal growth that are of primary interest to the Greenhouse program. Certain basic skills outcomes for students are included as Greenhouse learning objectives; these comprise the secondary thrust of this EBCE-type curriculum.

The following competences and behaviors are specified as the student learning objectives of the Greenhouse program. Most of the objectives involving competences are most appropriate for students who have completed or are nearing completion of the Greenhouse program, so evaluation of student attainment of objectives related to competences will focus on graduating Greenhouse seniors. However, because the available sample of graduating seniors is small and because the progress of the other Greenhouse students is of interest as well, the evaluation of attained competences will often include non-seniors as well. The evaluation of attainment of objectives concerning on-going student behavior (rather than competences) will involve all Greenhouse students.

Objective 1: Reading skills. Students can comprehend reading materials on adult encounters in daily living (advertisements, newspaper articles, timetables, memos, letters, directions, etc.).

Objective 2: Quantitative skills. Students can employ basic computational skills in the context of everyday tasks and problems encountered by adults (e.g., computing interest, making change, balancing a checkbook against a bank statement, computing miles per gallon of gas, constructing a budget, completing an income tax short form, etc.).

Objective 3: Oral communication skills. Students can listen and communicate effectively in work situations.

Objective 4: Writing skills. Students can write an acceptable report or essay of 250 words or longer.

Objective 5: Career-related self awareness. Students will demonstrate awareness and understanding of their current interests, abilities, and values relevant to career goal selection and achievement and recognize that these may change with further education or experience.

Objective 6: Career-planning involvement. Students will engage in activities enabling clarification of their plans for the future.

Objective 7: *Attitude toward career planning*. Students will significantly improve their attitude toward career planning.

Objective 8: *Career-related information*. Students will demonstrate the acquisition of a breadth and depth of information about jobs and careers.

Objective 9: *Career decision-making*. Students will demonstrate an ability to apply principles of informed decision-making and planning in formulating their post high school career and educational goals.

Objective 10: *Attitude toward learning and education*. Students will show a positive attitude toward school, learning, and education.

Objective 11: *Interpersonal skills*. Students will improve in those interpersonal skills necessary in making the transition from youth to adulthood.

Objective 12: *Self-reliance*. Students will demonstrate self-reliance and ability to function responsibly and independently in daily activities.

METHOD FOR PROCESS EVALUATION

The process evaluation made use of three types of information: (1) forms and products that were completed by Greenhouse students and staff as documentation of the learning process, kept in students' files within Greenhouse; (2) documentation of students' performance kept by Greenhouse or by the "parent" South Side High School on students (e.g., attendance records, credits earned); and (3) information on program perceptions collected by questionnaires from Greenhouse students, parents of students, and participating resource persons.

A Far West Laboratory staff member visited Greenhouse near the end of the school year to survey students' files and compile information needed from them. Data needed from general Greenhouse and South Side High School files were compiled by Greenhouse school staff and sent to Far West Laboratory at the end of the school year.

Far West Laboratory mailed questionnaires to parents and resources at the end of the school year (the Parent Opinion Survey and the Resource Opinion Survey, respectively). Students filled out a questionnaire (the EBCE Perceptions Survey) as part of the posttest battery. Copies of these questionnaires will be found in Appendix 3.

Both the Parent Opinion Survey and the Resource Opinion Survey were returned by the recipients by mail to the Laboratory. The students' questionnaires were collected by Greenhouse staff, bundled, and mailed to FWL. All questionnaire data were stored in locked files. Questionnaires were keypunched and computer-processed. All data were analyzed and summarized by the Far West Laboratory staff.

METHOD FOR STUDENT OUTCOMES EVALUATION

Groups

As originally conceived, the evaluation was to focus on the group of students who entered Greenhouse in the fall of 1977 after "referral" (i.e., counseling, not coercion) to Greenhouse by staff at South Side High School. The objectives forming the basis of the evaluation were stated in terms of absolute performance of Greenhouse students (rather than their performance relative to that of comparison or control students). However, it was felt that comparisons of Greenhouse students with comparable students not enrolled in Greenhouse could provide interesting supplemental information indirectly relevant to attainment of the objectives. For this reason, a "comparison group" was to be formed from students who were "referred" by South Side High School staff, but who chose _not_ to enter Greenhouse. These two groups were to be pre- and post-tested. Additionally, data were to be analyzed and reported in aggregate from the students _graduating_ from Greenhouse.

In practice this plan required modification because of unanticipated changes in the Greenhouse population. Some students transferred from Greenhouse to other programs. New students, most of whom were not referred by staff, replaced them. To accomodate the changing nature of program enrollment it was decided to incorporate data from all tested first-year students who spent at least one semester in Greenhouse. Where interesting, the data from returning (second-year) students were also included in certain analyses. Inasmuch as the Greenhouse population was comprised of three distinct groups--first-year referred students, volunteer "alternative students" (all of whom are first-year), and second-year students (all of whom are referred)--it was not possible to treat the entire set of data as a whole. The data for each group of students are identified and presented separately.

Since the comparison group of South Side High School students was self-selected from a special population (the group of students referred to the Greenhouse program by school staff), it can only be compared with Greenhouse students from the same population (_i.e._, referred students). Although these two groups of referred students should be similar in that they both comprise students thought by teachers to be "disaffected" and in need of the Greenhouse program, it should be noted that they are dissimilar in that students in the experiental group chose to enter the Greenhouse program, while students in the comparison group are part of the group of students who chose not to enter (namely those who agreed to participate in the evaluation pre-test and post-test.)*

---

* See Section 4 for a detailed discussion of the formation of the experimental and comparison groups.

Instrumentation

The instrumentation for the outcomes evaluation was preset in a behavioral restatement of student learning objectives (see Section 4). A full description of each instrument and a copy of all internally-developed instruments and forms are located in Appendix 3. Each instrument is also described briefly when it first is referenced in the outcomes section of the report. The following instruments were used in the student outcomes evaluation:

A. Externally Developed Tests
   - Assessment of Career Development (Career Involvement Inventory only)
   - SRA Survival Skills tests in reading and mathematics
   - Student Attitude Survey, developed by Research for Better Schools

B. Internally Developed Instruments
   - Student Background Summary (SBS)
   - School Opinion Survey (SOS)
   - Experiential Career Development Survey (ECDS)
   - Resource Opinion Survey
   - Parent Opinion Survey

C. Forms and Scales Used in the Greenhouse Instruction and Guidance Program
   - Career Decision-Making Questionnaire
   - Career Decision-Making Rating Scale
   - Oral Communication Rating Form
   - Writing Scale

Table 1 relates each instrument or form to the measurement of each student learning objective.

Data Collection

Pretest sessions were held in the fall for Greenhouse students and comparison students. Additional pretesting of students was done on a small-group or individual basis as they entered the Greenhouse program throughout the year. Some students completed their work early and exited from the Greenhouse program before the end of the year. These students were posttested

TABLE 1

STUDENT LEARNING OBJECTIVES DATA COLLECTION PLAN

Objective Area	Instrumentation	Tested Groups	Time Schedule
1. Reading Skills	SRA Survival Skills Test in reading	All groups	Pre-post
	ECDS Learning Scales	First-year Greenhouse and Comparison	Post
2. Quantitative Skills	SRA Survival Skills Test in mathematics	All groups	Pre-post
	ECDS Learning Scales	First-year Greenhouse and Comparison	Post
3. Oral Communication Skills	Oral Communications Rating Form	Graduating Greenhouse students	Post
	ECDS Learning Scales	First-year Greenhouse and Comparison	Post
4. Writing Skills	EBCE Writing Scale applied to student essay	First-year Greenhouse and Comparison	Pre-post
	ECDS Learning Scales	First-year Greenhouse and Comparison	Post
5. Career-related Self-awareness	ECDS items 9, 10	All groups	Post
	Decision-making questionnaire or career decision-making ratings	Graduating Greenhouse students	Post
6. Career Planning Involvement	ACD Career Involvement Scale	First-year Greenhouse and Comparison	Pre-post
7. Attitude toward Career Planning	Student Attitude Survey - Attitude Toward Careers Scale	First-year Greenhouse and Comparison	Pre-post
8. Career-related Information	Search of student files	All Greenhouse groups	Post
	ECDS Item 6	All Greenhouse groups	Post
	ECDS Learning Scales	First-year Greenhouse and Comparison	Post
9. Career Decision-making	SBS/EDCS Item 1	First-year Greenhouse and Comparison	Pre-post
	ECDS Items 4,5	All groups	Post
	Career decision-making questionnaire or career decision-making ratings	Graduating Greenhouse students	Post
	ECDS Learning Scales	First-year Greenhouse and Comparison	Post
10. Attitude Toward Learning and Education	School Opinion Scales	First-year Greenhouse and Comparison	Pre-post
	SBS/ECDS Items 8, 13	First-year Greenhouse and Comparison	Pre-post
11. Interpersonal Skills	ECDS Learning Scales	First-year Greenhouse and Comparison	Post
	Student Attitude Survey - Attitude Toward Self and Others	First-year Greenhouse and Comparison	Pre-post
	Resource Opinion Survey Items 6 and 8	Greenhouse students	Post
12. Self Reliance	ECDS Items 11, 12	All groups	Post
	Resource Opinion Survey Item 9	Greenhouse students	Post

upon exit. Comparison students leaving South Side High School were lost from the analyses. Students remaining in the Greenhouse program and comparison-group students were tested at the end of the year as called for in the original evaluation plan.

All testing of students was done by the Greenhouse staff using instruments provided by Far West Laboratory. At the end of the year, all students (at Greenhouse and at South Side High School) were paid a stipend of $7.50 for completing both the pretest and posttest sessions.

In addition to test data, information was collected from student files by a Far West Laboratory staff member during a site visit. Copies of specified forms in student files were sent to the Laboratory by Greenhouse staff at the end of the year. The Parent Opinion Survey was mailed by FWL to parents of every student enrolled in Greenhouse for at least one semester. The Resource Opinion Survey was mailed by Far West Laboratory to the list of resources provided by Greenhouse.

Data Processing and Analysis

All test data and other information were sent to the Far West Laboratory and kept in locked storage facilities. Random ID numbers were assigned to students, and all raw data were coded with these numbers. Processing of the data was the responsibility of two members of the FWL staff and was accomplished with the aid of an in-house computer system tied to an external computer facility.

Most measures were scored by FWL staff members. Exceptions were the Student Attitude Survey which was scored by the developer (Research for Better Schools); the Assessment of Career Development which was scored by the publisher; and the Oral Communications Scale and the Writing Scale which were scored and used by Greenhouse staff with the students within their program.

Because of the problems of non-comparability of groups, the limited sample sizes, and the non-comparison nature of most of the program objectives, tests of statistical significance were not emphasized, although they will often be included. The membership of the experimental and comparison groups are not randomly determined, and it is at least conceivable that the factors determining whether a student chose to enter Greenhouse or not could influence attainment of the objectives on which the two groups are compared (*e.g.*, perhaps those students who chose to enter Greenhouse are more motivated to succeed). In any case, though the statistical tests (mostly t-tests) used to compare the Greenhouse referred students and the referred students who did not enter Greenhouse are very conservative, some caution should be taken in interpreting statistically significant differences since the two comparison groups were not randomly selected.

3. PROCESS EVALUATION

PERSPECTIVE

For each process objective defined, one or more criteria were preset by Greenhouse to serve as indicators of progress. Evidence of attainment of these criteria was collected independently of the pretest/posttest data-collection process providing the basis of the evaluation of student learning outcomes which is discussed in Section 4. Records kept by South Side High School or Greenhouse as a part of the administrative and instructional processes are the principal sources of data for the process evaluation.

The criteria associated with process objectives constructed by the Greenhouse staff relate to the accomplishments and/or activities of all students. In analyzing program progress toward these objectives, it proved illuminating to assess the accomplishment of several meaningful groups of students. In addition to the Greenhouse students as a whole, mention will be made of first-year (new) students; second-year (returning) students, entering students who were referred to Greenhouse by high school staff, but who declined to enter (but who agreed to participate in the evaluation), first-year Greenhouse students who sought entry without high school staff referral, and Greenhouse seniors.* As should be expected, there were small discrepancies among records in the number of students for which there are data. Effort was made, not always successfully, to resolve these discrepancies. Thus, the number of students used in an analysis corresponds to the particular file or set of records used.

---

*Similar student groups will be used in the evaluation of student outcomes in Section 4. However, those analyses will be based upon groups for which complete pretest and posttest data are available.

FINDINGS

Objective 1: Keeping Students in School. Students will show improved school attendance after entering Greenhouse.

Criterion 1: First-year Greenhouse students will have fewer unexcused absences than they did the previous year.

Standard: If 70% of first-year Greenhouse students meet this criterion, the criterion will be considered achieved.

Instrumentation. Records of students' attendance which are kept by South Side High School.

Methodology. The number of absences of Greenhouse students who attended South Side High School the previous year were tallied for each of the two years. For each student, the two figures were compared.

Results. The data obtained through South Side High School made it difficult to differentiate between enrollment in Greenhouse and in the regular high school for those students transferring between programs. Because Greenhouse is administratively a part of the parent high school, attendance records collected for students who transferred between programs did not readily establish exact dates of transfer between the programs. Therefore, it was decided to compare the 1977-78 year-long absence data for Greenhouse students with that of their previous (1976-77) year, using the rationale that any substantial period in Greenhouse should have a positive impact on their year-long school attendance. Staff members at Greenhouse, however, identified nine students who had entered Greenhouse after periods of strong dissatisfaction with regular school that were characterized by frequent absences. Their contention was that these data could be interpreted in the exact opposite of what was perceived by them as the actual case; that is, under the proposed analysis the extraordinarily high number of absences of these students would be carried into their year-long totals and would reflect negatively upon Greenhouse, instead of showing Greenhouse as the solution that enabled them to stay in school. Therefore, the data of these nine students have been deleted from the analysis. Table 2 presents the absence data for the past two years for the remaining 19 new students who completed at least one semester in Greenhouse.

TABLE 2. COMPARISON OF THE UNEXCUSED ABSENCES DURING 1977-78 FOR STUDENTS ENROLLED ONE OR MORE SEMESTERS IN GREENHOUSE WITH THEIR CORRESPONDING RECORDS FOR 1976-77

Number of Students						
1977-78 Decrease In Absences		No Change In Absences			1977-78 Increase In Absences	
10 or more days	5 to 9 days	1 to 4 days	0 days	1 to 4 days	5 to 9 days	10 or more days
7	3	1	2	0	3	3

The data from Table 2 show that of the 19 new students, 11 showed a decrease from the previous year in the number of unexcused absences during the 1977-78 year, in which they attended Greenhouse at least one semester. Six students showed an increase in unexcused absences during 1977-78 and two students showed no change (one of these two students had only one unexcused absence each year -- so no decrease should be expected). Therefore, while a substantial percentage (58%) of new Greenhouse students did have fewer unexcused absences than the previous year, this was somewhat less than the percentage (70%) specified in the standard.

It should be noted that since absence data are available for students for the entire year and do not distinguish between enrollment in Greenhouse and in the regular South Side program, assessment of attainment of this criterion is not really possible--the data available provides only a rough idea. The nine students who were removed from the analysis because of numerous absences before joining Greenhouse (but in the same year as they joined Greenhouse) might well have provided the strongest evidence for attainment of this criterion since 7 of the 9 did graduate from Greenhouse (and so presumably attended school frequently) after having had numerous absences from the South Side High School before joining Greenhouse. It seems very likely, then, that if data had been available to directly compare absences at Greenhouse with absences by the same students while not at Greenhouse, the data would have shown that the objective of improving school attendance was attained.

Though a comparison of Greenhouse with non-Greenhouse students is not directly relevant to the objective of improved school attendance for students after joining Greenhouse, such a comparison could provide indirect evidence to suggest Greenhouse success relative to this attendance objective.

Criterion 2: Over the school year, the group of students who were referred to Greenhouse and chose to enter will have a lower median number of unexcused absences than will the group of students who were referred to Greenhouse but who chose not to enter.

Instrumentation. Records of students' attendance are kept by South Side High School. A list of students referred to (i.e., counseled to attend) Greenhouse by staff was compiled by South Side High School.

Methodology. Intended methodology was to compute and compare the medians of the number of unexcused absences for the two groups of students.

Results. In practice, two factors made the value of such a comparison doubtful. First, many students transferred between programs in South Side High School and Greenhouse throughout the year, and attendance records collected for these students did not readily establish exact dates of transfer between the programs. This made computations unreliable, especially when a student's transfer from South Side to Greenhouse was preceded by a period of frequent absences. Second, the number of students entering through referral for whom data are complete* is relatively small (seven). Table 3 presents the absence data for the 1977-78 school year for the group of new students entering after referral and the group of South Side High School students who declined entry to Greenhouse after referral. Also shown for comparison are corresponding data for other first-year students (self-selected) in Greenhouse who remained in that program for the full school year.

---

* Special circumstances (i.e., prolonged absences due to sickness or psychological disturbance) made the absence data on three students unusable.

TABLE 3

ABSENCES DURING 1977-78 OF NEW (FIRST-YEAR) STUDENTS AND THOSE STUDENTS DECLINING ENTRY TO GREENHOUSE AFTER REFERRAL

Statistic	Referred Students	Self-Selected Students	Referred, non entering Students
N	7	7	23
Range	4 - 69 days*	4 - 20 days	1 - 47 days
Median	23 days	11 days	23 days

These relatively sparse data do not indicate a difference between the absence rates of entering and declining referred students during 1977-78. It should be remembered, however, that the attendance data for referred students includes absences at South Side High School during the year in which they joined the Greenhouse program. Note that the group of first-year students seeking (i.e., not counseled by high school staff) Greenhouse as an alternative had a much lower number of absences than did the other two groups.

Interpretation of the Data for Objective 1. The standards preset to demonstrate the effectiveness of Greenhouse in keeping students in school were very high and not fully met. This may have been partly due to the inadequate data available: since data for Greenhouse and non-Greenhouse attendance were not available, the evaluation had to use yearly attendance data. Thus data for the year of entrance to Greenhouse included absences during enrollment in the regular high school as well as during enrollment in the Greenhouse program. Even with these inadequate data, however, there are indications that Greenhouse served to keep students (both referred and self-selected) in school. Of nine referred students who entered Greenhouse after periods of extreme dissatisfaction and non-attendance at the regular school, seven of these remained in school (Greenhouse) for the remainder of the year. Two of these students were seniors and earned sufficient credits to graduate. (The remaining two students were diagnosed as psychologically disturbed and

---

*Absences are for the full year; four of these seven students spent some semester at South Side High School.

40

began medical treatment.) Those new students seeking EBCE as an alternative curriculum (i.e., not identified by staff as "disaffected") showed a substantially lower number of absences than did the other students.

In summary, insufficient data prevented adequate assessment of attainment of this objective concerning improved attendance, but the data available indicated that (1) there was no evidence of difference in absence rate between the group of referred students who attended Greenhouse and the group of referred students who did not; (2) nearly all students who were having severe problems during the year at South Side High School and who transferred to Greenhouse as an alternative successfully completed the school year; and (3) students who voluntarily sought Greenhouse had substantially fewer absences than those who entered after referral. It is evident that a student-directed decision to enter Greenhouse was important in improving attendance.

Information on Student Attrition. Of the students who were enrolled in Greenhouse at least a full 10-week cycle and who left the program during the year, only two were actually school dropouts. These students were both in their second year of enrollment in Greenhouse, and they left school to take full-time jobs. Four second-year and five first-year students transferred to other alternative programs offered within the district (e.g., Adult Evening School, the Bureau of Cooperative Educational Services (BOCES) program). Three students (one second-year and two first-year) returned to the parent high school. One first year student left Greenhouse and entered the home-instruction program.

Objective 2: Establishing Progress Toward Graduation. Students will show progress toward graduation after entering Greenhouse.

Criterion 1: During the 1977-78 school year, Greenhouse students will earn credits at a normal rate for graduation (i.e., two credits or more per semester).

Standard: If 50% of Greenhouse students meet this criterion, the criterion will be considered achieved.

Instrumentation. Students' transcripts are kept by South Side High School.

Methodology. The credits earned by students when enrolled in Greenhouse one or more semesters (2 or more ten-week cycles) were tabulated and normalized to a per-semester average.

Results. Credit-assignment records were available for 52 students who were enrolled in Greenhouse for one or more semesters (two or more cycles). Of these, 32 students (62%) met or exceeded the credit accumulation rate of 2.0 per semester that enables graduation on schedule. Thus the standard was met. Of 29 first-year students, 20 (69%) earned two or more credits per semester. Of the 23 second-year students (all of whom were referred students), 12 (52%) earned two or more credits per semester. Considering only the data on 33 students who entered Greenhouse as a result of referral (23 second-year students, 10 first-year students), 15 (45%) earned two or more credits per semester and 18 (55%) did not. Of the 19 students who chose to enter Greenhouse without being referred, 17 (89%) earned 2 or more credits per semester.

Criterion 2: Seniors enrolled in Greenhouse will graduate.

Standard: If 70% of Greenhouse students meet this criterion, the criterion will be considered achieved.

Instrumentation. A list of students receiving diplomas during the 1977-78 school year was prepared by South Side High School.

Methodology. The list of students enrolled in Greenhouse one or more semesters during the school year was checked to ascertain which students had senior status academically (i.e., would graduate with the accumulation of the normal number of credits) at the outset of the 1977-78 school year. These students were designated as the seniors in Greenhouse. This list was compared with the list of graduating students prepared by South Side School.

Results. Of twenty-five seniors enrolled in Greenhouse, twenty-two (88%) graduated; thus the standard was met.

Although not directly relevant to the objective of normal progress toward graduation, data on the following criterion could provide an interesting measure of Greenhouse success in regards to the earning of credits by its students.

Criterion 3: During the 1977-78 school year, non-graduating Greenhouse students will exceed the amount of credit that they earned during a comparable period of the previous school year.

Standard: If 80% of non-graduating Greenhouse students meet this criterion, the criterion will be considered achieved.

Instrumentation. Students' transcripts are kept by South Side High School.

Methodology. The credits earned during the 1976-77 school year by non-graduating students who were enrolled in Greenhouse at least one semester during the 1977-78 year were tabulated and normalized to a per-semester average. These averages were compared to the students' corresponding per-semester averages during the year prior to their Greenhouse enrollment.

Results. Complete data were available for 29 students who were enrolled in Greenhouse at least one semester during the 1977-78 school year and who did not graduate. Seventeen of these were new students; of these six exceeded their previous year's credits and eleven did not. Twelve students were returnees from the previous year; of these, nine exceeded their previous year's credits and three did not. Thus, 15 students (52%) exceeded their previous year's credits and 14 (48%) did not; the standard was not met.

Interpretation of the Data for Objective 2. Most students in Greenhouse did make normal progress toward high school graduation. Given that most Greenhouse students were dissatisfied with regular school, and many were in danger of dropping out of school, the data collected -- 62% meeting or exceeding the normal rate of accumulation of credits (two per semester) and 88% of seniors graduating -- provide sufficient evidence. Students who entered Greenhouse as a result of South Side High School staff referrals did less well than those who chose to enter without such referrals; 45% of the referral students (as compared to 89% of the self-selected students) met or exceeded two credits per semester.

The data also reveal that many new students underwent an initial period of low productivity; only 6 of 17 new students equalled or exceeded the number of credits they earned in their previous year. During students' second year in Greenhouse, their productivity increased; 9 of 12 second-year students exceeded the number of credits they earned in their previous year. The period of relatively low productivity associated with many entering students has been observed in other replications of FWL/EBCE. It takes many students time to adjust to increased self-responsibility for their own learning and to learn to plan projects around activities with resources in the community.

Objective 3: Providing Students with a Community-Involved Curriculum That Blends Career Exploration and Academic Learning. The curriculum will be developed around learning activities in the community that expose students to actual work settings, but will offer students opportunitites for earning academic credit through experiential and traditional modes.

Criterion 1: Academic credit will be available to Greenhouse students through projects that blend career exploration with academic learning.

Instrumentation. A Project Summary Report should be filed by a Greenhouse student at the completion of a project. The amount and type of credits awarded to the project is entered on the report by the student's Learning Coordinator and entered into the student's file.

Methodology. For each student, the number of Project Summary Reports was noted for which academic credit was awarded.

Results. A search was made of student files in June, 1978. The data shown in Table 4 were compiled at that time. Forty out of 51 students had completed at least one project using resources in the community for which academic credit was awarded; 25 out of 51 had completed two or more such projects.

TABLE 4

NUMBER OF PROJECTS COMPLETED BY STUDENTS FOR ACADEMIC CREDIT, 1977-78

TYPE OF STUDENT		Number of Projects Completed for Academic Credit							
		0 f	1 f	2 f	3 f	4 f	5 f	6 f	7 f
First Year	(N = 28)	5	7	7	2	5	1	0	1
Second Year	(N = 23)	6	8	3	2	2	0	0	2
Aggregate	(N = 51)	11	15	10	4	7	1	0	3

Criterion 2: Greenhouse students will earn at least 50% of their awarded credit as a result of project-related activities.

Standard: If 90% of Greenhouse students meet this criterion, the criterion will be considered achieved.

Instrumentation. Credit Assignment Summaries are completed by student and staff and filed documenting amount and type of credits earned. Credits earned through Greenhouse are accumulated for each student and reported to South Side High School by the Greenhouse leader.

Methodology. Credits accumulated by each student enrolled two or more cycles in Greenhouse were related to project or non-project (i.e., "supplementary") activities by Greenhouse staff using the internal documentation provided by the Credit Assignment Summaries. The percentage of each student's total credit that resulted from project activities was calculated. Table 5 provides an overview of the distribution of these percentages.

Results. From the tabular data, it is seen that 41 of 50 students obtained less than 50% of their credits through projects. Thirteen of the students were not involved successfully in projects (less than 10% of their credits resultant). Nineteen of the 50 students received between 30% and 50% of their credits from projects, showing some project activity but less than desired by the program. Nine students received more than 50% of their credits through projects. Further analysis is illuminating. Table 6 presents statistics on the distribution of project credits, non-project credits, and total credits by (1) year of student's entry (i.e., new student or returning student) and by (2) mode of student's entry (i.e., self-selected or referral). The data indicate that as a group, the new students were more successful in accumulating credits through projects than were the returning students (means of 0.91 and 0.50 credits/semester respectively) and possibly more successful at earning credits overall (means of 2.19 and 1.89 credits/semester respectively).

This superiority in earning credits of first-year students over return-students occurs despite the finding reported earlier that there is a period of low productivity in credit earning in the first year at Greenhouse. This discrepancy is explained by the finding (apparent in Table 6) that self-selectees were considerably more successful than referrals in completing

TABLE 5

DISTRIBUTION OF PERCENT OF TOTAL CREDITS EARNED BY INDIVIDUAL STUDENTS THROUGH PROJECTS ANALYZED BY LENGTH OF GREENHOUSE ENROLLMENT, 1977-78

LENGTH OF ENROLLMENT IN 10-WEEK CYCLES	NUMBER OF STUDENTS N = 50	PERCENT OF TOTAL CREDIT EARNED THROUGH PROJECTS									
		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
2	21	6	1	3	6	1	2	1	0	0	1
3	10	3	0	1	5	0	1	0	0	0	0
4	19	4	3	1	3	4	3	0	0	1	0
Aggregate	50	13	4	5	14	5	6	1	0	1	1

TABLE 6

DISTRIBUTION OF CREDITS EARNED BY GREENHOUSE STUDENTS THROUGH PROJECT AND NON-PROJECT ACTIVITIES, 1977-78 (N=50)

TYPE OF STUDENT	NO. OF CYCLES ENROLLED	N	TOTAL CREDITS EARNED				MEAN CREDITS EARNED PER SEMESTER		
			Amount Project	Amount Non-proj.	% Project	% Non-pro.	Project	Non-Project	TOTAL*
FIRST YEAR	2	13	12.00	18.50	39	61	0.92	1.43	2.35
	3	9	8.25	17.25	32	68	0.61	1.28	1.89
	4	6	14.75	13.75	52	48	1.23	1.15	2.38
	Total	28	35.00	49.50	41	59	0.91	1.28	2.19
SECOND YEAR	2	8	4.00	11.00	27	73	0.50	1.38	1.88
	3	1	-0-	1.50	0	100	-0-	1.00	1.00
	4	13	13.75	36.75	27	73	0.53	1.41	1.94
	Total	22	17.75	49.25	26	74	0.50	1.39	1.89
SELF-SELECTED	2	7	10.25	10.00	51	49	1.46	1.43	2.89
	3	5	5.75	9.00	39	61	0.77	1.20	1.97
	4	5	13.50	11.00	55	45	1.35	1.10	2.45
	Total	17	29.50	30.00	50	50	1.20	1.23	2.43
REFERRED	2	14	5.75	19.50	23	77	0.41	1.39	1.80
	3	5	2.50	9.75	20	80	0.33	1.30	1.63
	4	14	15.00	39.50	28	72	0.54	1.41	1.95
	Total	33	23.25	68.75	25	75	0.47	1.39	1.86

*NORMAL PROGRESS TOWARD GRADUATION IS 2.0 CREDITS PER SEMESTER projects (means of 1.20 and 0.47 credits/semester respectively) resulting in greater success overall in the program (means of 2.43 and 1.86 credits/semester respectively). Remember that all 22 returning students are referred students, while 17 of the 28 first-year students are self-selected. Thus, though referred students improve their rate of earned credit in the second year at Greenhouse, the higher productivity of self-selectees and their inclusion in the first-year group and exclusion from the second-year group accounts for the higher mean productivity of the first-year students.

Criterion 3: Supplemental academic credit will be available to students through workshops, small-group tutorials, and regular-school (external) courses.

Instrumentation. Two program forms placed in students' files, Overview of Student Activities and Credit Assignment Summaries, document supplemental (non-project) activities.

Methodology. For each student, the amount and source of non-project academic credit entered on Credit Assignment Summaries in his/her file was noted. The Overview of Student Activities in each file was used as a check on the completeness of information.

Results. Table 7 aggregates the information collected by a survey of student files in June, 1978. From the table it is seen that 44 of 51 students (86%) participated in at least one workshop; 28 of 51 students (55%) received credit from at least one course outside of Greenhouse; 10 of 51 students (20%) received credit from a tutorial; and 12 of 51 students (24%) earned academic credit through a work-for-pay "co-op" in the community. New students differed somewhat from returning students in their preferences for supplementary learning modes. Workshops were the most common mode for both groups (86% of new students, 87% of returning students) followed by external courses (61% of new students, 48% of returning students). Tutorials brought credit for 29% of new students but only 9% of returning students; work-for-pay co-ops brought credit to 35% of returning students but only to 14% of new students. Only two students (one new and one returning) received no supplemental academic credit.

TABLE 7

FREQUENCY OF SUPPLEMENTARY ACTIVITIES FOR ACADEMIC CREDIT BY STUDENTS, 1977-78

TYPE OF STUDENT	TYPE OF SUPPLEMENTARY ACTIVITY	NUMBER OF ACTIVITIES COMPLETED BY A STUDENT FOR ACADEMIC CREDIT											
		0 f	1 f	2 f	3 f	4 f	5 f	6 f	7 f	8 f	9 f	10 f	11 f
First Year* (N = 28)	Workshops	4	3	8	6	2	1	3	0	1	0	0	0
	External Courses	11	4	3	5	2	1	0	2	0	0	0	0
	Tutorials	20	5	2	1	0	0	0	0	0	0	0	0
	Co-ops	24	4	0	0	0	0	0	0	0	0	0	0
Second Year* (N = 23)	Workshops	3	1	3	2	4	4	0	1	0	3	0	2
	External Courses	12	6	3	1	1	0	0	0	0	0	0	0
	Tutorials	21	2	0	0	0	0	0	0	0	0	0	0
	Co-ops	15	8	0	0	0	0	0	0	0	0	0	0
Total (N = 51)	Workshops	7	4	11	8	6	5	3	1	1	3	0	2
	External Courses	23	10	6	6	3	1	0	2	0	0	0	0
	Tutorials	41	7	2	1	0	0	0	0	0	0	0	0
	Co-ops	39	12	0	0	0	0	0	0	0	0	0	0

*One student completed no supplementary activities of any kind.

Criterion 4: During the school year, Greenhouse students will participate in at least two in-depth (i.e., 40 or more hours) on-site experiences and four shorter, on-site experiences with resources.

Standard: If 75% of Greenhouse students meet this criterion, the criterion will be considered achieved.

Instrumentation. Career Orientation Guides, Job Information Questionnaires, Overview of Student Activities, and Project Summary Reports are forms completed and filed by students before, during, and after activities with resource people in the community.

Methodology. At the conclusion of the year, a survey of student files was made to collect evidence of orientation and in-depth activities in the community for each student. The previously-mentioned forms were inspected for each student and evidence of community activities was noted. The standard as written assumes a full year's enrollment in Greenhouse. In order to use data collected on all students, data aggregated were normalized to a one-semester period, thus the criterion for a student's involvement during one semester was related as one in-depth experience in the community and two shorter, orientation experiences.

Results. When the data taken from student files were compared to the modified, one-semester criteria, the results were:

16 students met both the criterion for in-depth experiences and the criterion for orientations;

11 students met only the criterion for in-depth experiences;

9 students met only the criterion for orientation experiences; and

15 students met neither criterion.

Thus, 31% of students met both the criteria, compared with the 75% preset as a standard.

Interpretation of the Data for Objective 3. Students in Greenhouse were offered the opportunity to earn credit through two modes: (1) self-designed projects involving activities in the community and relationships with volunteer resource persons, and (2) a choice or combination of supplemental, non-project activities -- workshops, external courses, tutorials, and on-site work-for-pay "cooperatives." Most students were involved to some extent in project activities; 40 out of 51 students received some credit for projects. However, students were more successful in accumulating credit through the supplemental activities. Workshops were the most frequent form of supplemental activity for credit. Only two students did not accumulate credit through some form of supplemental activity.

Projects in the community were stressed by Greenhouse as the principal method of accumulating credits. It was hoped that each student would plan and complete sufficient project activities to earn over 50% of his/her credits. In fact, only 18% of the students did so. A sizable group (38%) approached the desired standard, earning between 30% and 49% of their credits by projects. As a group, volunteer students did meet the standard, averaging per semester 1.20 credits by projects and 1.23 credits by supplemental activities. Their group mean of 2.43 credits earned per semester was well in excess of the norm of 2.0 credits per semester required for graduation with their class. Referred students were relatively unsuccessful as a group in earning credits through projects, with a mean of only 0.47 credits per semester. The group mean of 1.86 total credits earned per semester was somewhat under the normal rate necessary for graduation with their class.

In Greenhouse, students are exposed to the world of work through project activities that encourage orientations at several community sites and require more lengthy, in-depth learning experiences at a few resource sites. Each project completed requires one or more in-depth experiences at a resource site. It was the expectation that Greenhouse students would engage in both orientation and in-depth activities in the community. The established standard for program success was high: 75% of students completing one in-depth and two shorter on-site learning experiences in the community per semester. This expectation was not fully realized. In actuality, 31% of the students met this criterion with an additional 39% fulfilling either the in-depth or orientation portion of the criterion. The majority of students focused on supplementary learning activities; their amount of community experience was less than if their focus had been on projects.

Objective 4: Gaining Participants' Acceptance. Students, parents of students, and participating resource persons will support Greenhouse as a valuable program for students.

Criterion 1: At the end of the 1977-78 school year, Greenhouse students will indicate that they like the Greenhouse program and that it meets their needs.

Standard: If 85% of Greenhouse students meet this creterion, the criterion will be considered achieved.

Instrumentation. The EBCE Perceptions Survey was administered to Greenhouse students during June, 1978. Students leaving the program earlier completed the instrument at the time of exit.

Results. Response date for 41 students on relevant items (all using a five-point, increasingly positive scale) in the EBCE Perceptions Survey are shown in Table 8. These data show remarkably consistent and strong positive attitudes toward the Greenhouse program. All questions about liking the program and its perceived usefulness were responded to very favorably by most students. When asked if they would elect EBCE again should they have the chance, 90% of the responding students answered affirmatively (the item mean was 4.60). When asked how they liked the experiential, community-based learning mode, 88% replied positively (the item mean was 4.51). When asked to compare their motivation to learn in EBCE with their motivation in past regular-school programs, 85% rated their motivation higher in EBCE (the item mean was 4.32). When asked to judge the EBCE program's success in providing for their own needs, 78% rated the program successful in "learning about careers" and 84% rated the program as successful in "planning for a future career" (item means of 4.13 and 4.25, respectively). In rating "learning about oneself" and "learning to make decisions," 88% of the students rated the program as successful for them (item means of 4.50 and 4.41, respectively). The Greenhouse program was also judged by most students to be successful for them in the areas of "improving basic skills" and "learning academic skills:" 81% of the students rated the EBCE program as successful with them in the areas of basic skills (item mean of 4.00), and 68% rated the EBCE as successful with them in the area of academic subjects

TABLE 8

STUDENTS' RESPONSES ON ITEMS RELATING TO HOW WELL THEY LIKED GREENHOUSE AND HOW IT MEETS THEIR NEEDS, JUNE 1978 (N=41)

QUESTIONNAIRE ITEM	FREQUENCY OF RESPONSE					ITEM RESPONSE MEAN
	Rating Scale					
	1	2	3	4	5	
	Definitely No				Definitely Yes	
If you had it to do over again, do you think that you would participate in the EBCE program?	2	1	1	3	33	4.60
	Very Little				Very Much	
How much did you like the way of learning (relating study to experience at resource sites) that is used in the EBCE program?	1	0	4	8	28	4.51
In comparison with your past experiences in regular schools, how motivated were you to learn in the EBCE program?	2	0	4	12	23	4.32
How successful was the EBCE program for you in?:	Not At All Successful				Very Successful	
Learning about possible careers	0	1	6	13	12	4.13
Planning for a future career	0	1	4	13	14	4.25
Learning about oneself	0	1	3	7	21	4.50
Learning to make decisions	0	1	3	10	18	4.47
Improving basic skills	0	1	5	19	7	4.00
Learning academic subjects	0	4	6	19	2	3.61

(mean of 3.61). Thus, on most of the relevant items on the EBCE perceptions Survey, the standard was met.

Criterion 2: At the end of the 1977-78 school year, parents of Greenhouse students will indicate support for the program.

Standard: If 85% of parents meet this criterion, the criterion will be considered achieved.

Instrumentation. A mailable Parent Opinion Survey has been constructed by FWL and used previously at other sites to measure the attitudes of parents of EBCE students toward the alternative program.

Results. At the end of the school year (June, 1978), FWL mailed the Parent Opinion Survey to the parents of students who had been enrolled in Greenhouse at least one semester during the year. Out of 63 surveys mailed, only 15 were completed and returned to FWL. This low rate of return makes calculations of percentages of responses inappropriate. However, it can be seen from the means and distributions for the items (Table 9), that most responses were positive, though not as positive as were the responses of students.

The data show that 9 of 14 responding parents would, if deciding again, want their son/daughter to attend Greenhouse, while only 3 of the 14 responding parents would not want him/her to attend (2 of the respondents were undecided). In judging the effectiveness of EBCE staff in helping to plan learning programs tailored to the student's needs, 11 of 15 felt the staff effective; none felt the staff ineffective (4 were undecided). In judging the effectiveness of staff in dealing with students' problems as they arose during the year, 10 of the 15 parents responding felt the staff effective; 3 of the 15 felt the staff not effective (2 were undecided). Finally, in comparing the overall quality of Greenhouse with previous programs their son/daughter had attended, 10 of the 15 parents judged the Greenhouse program as better; 3 of the 15 felt it worse (2 were undecided). The data show support among students' parents for Greenhouse, but the figures shown (approximately 67%) are lower than the standard of 85% that was established.

Criterion 3: At the end of the 1977-[illegible] school year, people acting as participating resources will indicate they feel the Greenhouse program is valuable and that they intend to continue their involvement.

Standard: If 75% of people acting as participating resources meet this criterion, the criterion will be considered achieved.

Instrumentation. A mailable Resource Opinion Survey has been constructed by FWL and used previously at other EBCE sites to tap the attitudes of resource persons about their participation in EBCE, and their plans for continued association with EBCE.

Results. The Resource Opinion Survey was mailed to a list of 103 resource persons who had been recruited by the Greenhouse staff and who had agreed to participate with students. The Survey was also mailed to 37 other resource persons who had participated with students but who had been informally recruited by students without follow-up "development" by Greenhouse staff. Of these 140 mailings, 37 were completed and returned by resources who had on-site experiences with students. A few resource persons returned the questionnaire uncompleted with the comment that they had not yet seen a student. The questionnaire contained three questions that relate directly to this criterion. Table 10 summarizes response data for the questions. When asked,"In term of your own experiences--weighing costs, benefits, and other contributing factors--how do you feel about participation in the EBCE program by you, by your organization, and by students?," 83% of respondents felt participation was desirable for themselves, 84% of respondents felt participation was desirable for their organization, and 94% of respondents felt participation was desirable for students. When asked,"Do you plan to continue to participate in the EBCE program?," 81% of the respondents answered affirmatively. When asked,"Would you recommend to other organizations or individuals that they become involved in the EBCE program?," 83% of the respondents replied yes or definitely yes. In every case, the percentage of support among respondents exceeded the standard set of 75%.

Interpretation of Data for Objective 4. It was projected that EBCE students, their parents, and participating resource persons would all show a high degree of support for the individualized, experiential, community-based learning that forms the basis of Greenhouse. The perceptions of the EBCE curriculum held by Greenhouse students was measured through a series of rating scales completed by students at year-end (or program exit, if sooner). Nearly all EBCE students were very positive about the school. They liked the learning strategy of EBCE. Students felt Greenhouse helped them to learn

TABLE 9

PARENTS' RESPONSE AT END-OF-YEAR TO QUESTIONNAIRE ITEMS RELATING TO THEIR SUPPORT OF GREENHOUSE

QUESTIONNAIRE ITEM	RESPONSE N	FREQUENCY OF RESPONSE					RESPONSE MEAN	PERCENT POSITIVE RESPONSE	PERCENT NEGATIVE RESPONSE
		RATING SCALE							
		1	2	3	4	5			
		Definitely No				Definitely Yes			
If you had it to do over again, would you want your son or daughter to participate in EBCE again?	14	1	2	2	0	9	4.00	64	21
Was the EBCE staff effective in helping your son or daughter plan a learning program suited to his or her needs?	15	0	0	4	5	6	4.13	73	0
Was the EBCE staff effective in handling any problems that developed with your son or daughter during the school year?	15	1	2	2	5	5	3.73	67	20
		Much Worse				Much Better			
How does the EBCE program compare with other school programs which your son or daughter has attended?	15	0	3	2	4	6	3.87	67	20

TABLE 10

RESOURCE PERSONS' RESPONSES TO ITEMS ON THE MAIL-QUESTIONNAIRE (JUNE 1978)

QUESTIONNAIRE ITEM	RESPONSE N	FREQUENCY OF RESPONSE RATING SCALE 1	2	3	4	RESPONSE MEAN	PERCENT POSITIVE RESPONSE	PERCENT NEGATIVE RESPONSE
		Undesirable	Somewhat Desirable	Desirable	Very Desirable			
In terms of your own experiences - weighing costs, benefits, and other contributing factors - how do you feel about participation in the EBCE program:								
for you	36	2	4	20	10	3.06	83	17
for your organization	31	2	3	14	12	3.16	84	16
for students	32	1	1	13	17	3.44	94	6
		Definitely No			Definitely Yes			
Do you plan to continue to participate in the EBCE program?	36	6	1	11	18	3.14	81	19
Would you recommend to other organizations or individuals that they become involved in the EBCE program?	36	1	5	10	20	3.36	83	17

about possible careers and to begin to plan for the future. They also felt that it helped them to learn about themselves and how to make informed decisions. They felt the program helped them to exercise and improve their basic skills. As a group, they were still positive, but less so, about the program's helpfulness in the learning of academic subject matter.

The degree of parents' support of the EBCE learning strategy is difficult to assess because of the low rate of return (15 out of 63) of the questionnaires that were mailed to them at the end of the year. It might be argued that such a rate of return is in itself an indication of a lack of enthusiasm about the program. However, in a realistic perspective, it seems that the completing of a questionnaire by a parent about a student's school experiences and its return to a distant research organization is not likely to have high priority for him/her unless either: (1) the student was encountering severe school and/or home problems that were obviously alleviated by the new school program, or (2) the student encountered severe problems in the new school program that were evident at home. For the majority of students, neither is likely to be the case (although Greenhouse had a substantial population of "referrals" who were encountering strong problems in school at their times of entry into the program). If we assume that the sample of parents responding is likely skewed toward the unusual, rather than usual students, then there is likelihood that many parents support the program and consider it as useful for their child. It is likely, however, that the percentage having strong support is less than that hypothesized. Also, there is a substantial portion of parents (approximately 20% of the respondents but likely a smaller percentage of non-respondents) who did not perceive the program as helpful to their son/daughter. This need not be considered a negative finding inasmuch as most Greenhouse students were dissatisfied with school at entry and actively seeking an alternative to regular school. Though the question was not asked, it is plausible that a high percentage of their parents would also assert that regular school had not been helpful to their son/daughter. Clearly, there is no reason to believe that EBCE should be the solution to the problems of every dissatisfied student.

The survey of resource persons was mailed to every resource person contacted by Greenhouse who had agreed to participate with students--a total of 140 people. Data were compiled from the 37 respondents who had spent time with Greenhouse students during the year. This respondent sample seems representative of the pool as a whole, as is shown by Table 11. Resource persons as a group were very supportive of the Greenhouse program. They felt their involvement (and that of their organization) was desirable for themselves (and for their organization), and they felt the program was beneficial to the students. From this survey it can be judged that there exists a substantial number of resource people in the community - representing a spectrum of careers - who will share their time and knowledge with students. These resource persons support the concept of experienced-based learning, and most will continue their participation over a period longer than one year.

TABLE 11

COMPARISON OF TOTAL RESOURCE - PERSON MAILING WITH THE SET OF RETURNS BY RESOURCE PERSONS HAVING PARTICIPATED WITH GREENHOUSE STUDENTS

Classification of Resource Person	MAILING		RETURNS	
	N	%	N	%
Science	13	9	2	5
Business	16	11	4	11
Social Science	28	20	9	24
Communications	22	16	7	19
Practical Arts	24.	17	4	11
Unclassified (student-recruited)	37	26	11	30

GENERAL SUMMARY OF FINDINGS ON PROCESS OBJECTIVES

Keeping Students in School

Attendance data were inadequate to properly assess attainment of this objective (attendance data were by year and so lumped together the time during the year that students were enrolled in Greenhouse and the time they were not). However, seven of nine students who were having various severe problems at South Side High School during the year and who transferred to Greenhouse became involved in that program and successfully completed the school year. Of students who were enrolled in Greenhouse for a full ten-week school "cycle" or longer, only two dropped out of school. Those students who voluntarily sought Greenhouse had substantially fewer absences than those who entered after referral by high school staff. In comparisons of the "treatment group" of referred students who attended Greenhouse and the "comparison group" of referred students who declined to attend and remained in regular school, no significant differences in the number of unexcused absences were found.

Thus it would have to be said that the data were inadequate to determine if the objective was met, though there is considerable qualitatively and anecdotal evidence that Greenhouse was quite successful at keeping students in school.

Establishing Normal Progress Toward Graduation

Of all Greenhouse students, 62% met or exceeded the normal rate of two earned credits per semester. Of the group of Greenhouse students who were referred to the program because of failure to progress in regular school, 45% earned academic credits at at least the normal rate. Of all Greenhouse students, 52% earned more credits during their enrollment there than they did during the comparable period of the previous year. Twenty-two out of 25 seniors enrolled in Greenhouse graduated.

Thus, there is considerable evidence that this objective was accomplished by the Greenhouse program.

Providing a Community-Based Curriculum That Blends Career Exploration and Academic Learning

Forty out of 51 students received academic credit through learning projects using community resources. Workshops, courses at the high school or other community institutions, tutorials, and work-for-pay cooperatives were also available to students for academic credit. Forty-nine out of 51 students received academic credit through these "supplementary" activities.

Although projects were intended to be the primary means for students to earn credit, in practice 41 of 50 students accumulated a majority of their credits through supplementary activities. Nevertheless, 28 students received 30% or more of their credits through projects utilizing resources in the community.

In Greenhouse, project activities encourage survey (orientation) activities at several employer sites and in-depth (exploration) activities at a few sites. It was projected by staff that they would encourage students to complete two or more explorations and four or more orientations within the community during a full year (two semesters) in Greenhouse. Pro-rating this on a semester basis, it was found that of students who enrolled in Greenhouse one semester or longer, 31% fulfilled both criteria and an additional 39% fulfilled one of the two (exploration or orientation) criteria.

Thus, there is considerable evidence that the Greenhouse program does provide opportunities for credit to be earned through experiential and traditional modes (and so did achieve this objective), though student involvement in projects and in-depth activities might have been less than hoped for.

Gaining Participants' Acceptance

Students' perceptions of Greenhouse were collected by an end-of-year questionnaire. Students showed strong and consistent approval of the Greenhouse program: nearly all students liked the learning strategy of EBCE, felt that Greenhouse helped them to learn about possible careers and to begin to plan for the future, helped them to learn about themselves and how to make informed decisions, and helped them to exercise their basic skills. As a group they were positive, but relatively less so, about the program's help to them in the learning of academic subject matter (mean rating of 3.61 out of 5).

Parents of Greenhouse students were surveyed at the end of the year by a mail questionnaire. A low rate of return made the true degree of parents' support difficult to assess, however approximately 67% of respondents strongly supported the Greenhouse program on the survey items. There was a portion of parents (approximately 20%) who were critical of the program. Approximately 10-15% of parent respondents were neutral about Greenhouse.

At the end of the year, a Resource Opinion Survey was mailed to all resource persons who had agreed to participate with students. Thirty-seven questionnaires were returned by resources who had actually participated with Greenhouse students. Of these respondents, more than 80% felt participation was valuable for them, felt participation was of value to their organization, felt participation was desirable for students, plan to continue their participation next year, and would recommend participation in EBCE to other organizations.

There is strong evidence, then, that this objective was achieved.

4. EVALUATION OF STUDENT LEARNING OUTCOMES

In Chapter 2, four process objectives and twelve student-learning objectives were presented for Greenhouse. It is likely that district administrators will judge Greenhouse's effectiveness during 1977-78 largely by the degree it accomplished the process objectives. Data related to these objectives were presented and discussed in Chapter 3. As an illustration of Experience-Based Career Education, Greenhouse will be evaluated largely by its degree of accomplishment of the student-learning objectives. These objectives are in three categories: (1) skills and knowledge related to career development, (2) interpersonal (and personal) skills related to making the transition from youth to productive adulthood, and (3) basic skills -- those "survival" competences in reading, writing, speaking, and computing -- necessary for adult living in society. EBCE is intended to provide experiential, community-based learning to facilitate students' career development and growth in interpersonal skills without neglecting their development of basic skills competences.

GROUPS USED IN THE EVALUATION

Formation of Groups

Greenhouse Students. In fall, 1977, the Greenhouse enrollment consisted of three types of students: returning students, new referred students, and new self-selected students. There were 25 returning students. These "second year" students had entered the program during the previous year through referrals by South Side High School staff because of a lack of adjustment and success in the regular school program. All of these students had had some exposure to EBCE as a learning strategy during their previous year in Greenhouse.

A second type of students consisted of those referred students who were new to the program for the 1977-78 school year. Thirteen of these new referred students were pretested during the period between September and December, 1977 (first and second school cycles).

In addition to the referred students, Greenhouse opened its enrollment in the fall, 1977, to a limited number of other students who wished to enter. These self-selected "alternative" students had not been identified by school staff as having problems in adjustment or achievement in the regular program but were students seeking an alternative, action-oriented program. During the fall of 1977 (first and second cycles), twelve "alternative" students entered the program.

Greenhouse continued to accept new students; during the interval between December and March (second and third cycles), nine new students (six alternative and three referred students) were pretested, bringing the total tested group size to 46. Of these 46 students, nine left the program early and were posttested at exit. Five of these were second-year students and four were first-year "alternative" students. In all, ten alternative students and three referred, first-year students had only one semester (two or three cycles) of experience in Greenhouse before posttesting. Additionally, 13 students who had been pretested in the fall left during the year without being posttested; eight were second-year students and five were first-year students.

The groups used in the analyses were formed from all these students who were both pretested and posttested:

Group S--17 returning second-year students
Group A--18 first-year, self-selected students
Group R--11 first-year, referred students

Table 12 summarizes the pretesting and posttesting of Greenhouse students. There were students enrolled in Greenhouse who were not used in the analyses: the group of 13 who withdrew without posttesting; several students who entered Greenhouse briefly and withdrew without ever entering the testing; and a few students who entered the program in the late spring (fourth cycle).

Comparison Students. The primary means of entry into Greenhouse was through staff referral from South Side High School. During spring, 1977, teachers at South Side High School were asked to provide names of students who might benefit from Greenhouse (those who were "disaffected" but might benefit from the alternative curriculum). A list of approximately 80 names was assembled. All of these students were approached by Greenhouse or South Side staff members and encouraged to apply for the Greenhouse program. Sixteen of the 80 students did enter Greenhouse (see Table 12). Eleven of these were both pretested and posttested and form the experimental group for the evaluation.

TABLE 12

COMPARISON OF PRETEST AND POSTTEST BY STUDENT GROUPS WITHIN GREENHOUSE

TYPE OF DATA	RETURNING	FIRST-YEAR SELF-SELECTED	FIRST-YEAR REFERRED	TOTAL
Pretest - Fall Enrollees	25	12	13	50
Pretest - Spring Enrollees	0	6	3	9
Total Pretest	25	18	16	59
Posttest - Early Leavers	5	4	0	9
Posttest - End of Year	12	14	11	37
Total Posttest	17	18	11	46

Those students who were on the staff referral list but who chose not to enter the Greenhouse program were asked by a staff member to serve as members of a comparison group (Group C). These students were offered a stipend for participating in two testing sessions. (Greenhouse students were given the same stipend in order to standardize the testing situation.)

Twenty-seven of the non-entrants to EBCE came to the October, 1977 pretest session, and 23 of these came also to the June, 1978 posttest session. The comparison Group C for the analyses consists of the 23 students who completed both the pretest and posttest. There was almost a full school year between pretest and posttest data collection for members of this group.

Comparability of Groups

From the the description that has been given of the derivation of the three groups of Greenhouse students, it can be seen that differences among them should be expected. And while there is some basis for comparability between Group R (referred enterers) and Group C (referred non-enterers) there is no basis for assuming that either Group S (returnees) or Group A (new self-selected) is comparable to Group C. Group S students as a whole are older (mostly twelfth graders) than the other students and have, of course, had previous experience in EBCE. Group A students are clearly not from the same pool of applicants as are students in Group R and Group C; thus their progress cannot meaningfully be compared with that of Group C students.

Problems in comparability also remain when Group R and Group C are examined. Although both of these groups are subgroups from the full pool of 80 referrals, both groups were formed by a self-selection process: students in Group R chose to enter Greenhouse; students in Group C chose to remain in South Side High School and also chose to participate in the evaluation. Thus Group C is not a true control group but should be considered as the best available comparison group for Group R.

Table 13 presents demographic data on the four student groups used in the evaluation. Some differences in grade level are apparent among the three Greenhouse groups (second year students are mostly twelfth graders; Group R students are the youngest) and in father's educational level (most second year students report parents have no more than a high school diploma; the other Greenhouse groups report most fathers with some college). Almost all students in all three Greenhouse groups report their ethnic group as "white" (percents range from 73 to 82).

TABLE 13

DISTRIBUTIONS OF GREENHOUSE AND COMPARISON STUDENTS ON DEMOGRAPHIC VARIABLES

VARIABLE		GREENHOUSE						COMPARISON	
		Returning Group S N = 17		First Year Self-Selected Group A N = 18		First Year Referred Group R N = 11		Referred Group C N = 23	
		f	%	f	%	f	%	f	%
Grade Level:	10	0	0	2	11	4	36	0	0
	11	5	30	8	44	3	27	13	57
	12	12	70	8	44	4	36	10	43
Sex:	Male	9	53	11	61	4	36	12	52
	Female	8	47	7	39	7	64	11	48
Ethnic Group:	Black	2	12	1	6	1	9	6	26
	White	14	82	14	78	8	73	13	57
	Other	1	6	3	17	2	18	4	17
Father's Education:									
	High School Diploma or Less	12	70	4	22	2	18	15	65
	Some College or College Graduate	4	24	9	50	6	55	6	26
	Some Post-graduate	1	6	5	28	3	27	2	9
Mother's Education:									
	High School Diploma or Less	11	69	10	56	4	36	14	61
	Some College or College Graduate	5	31	6	33	4	36	6	26
	Some Post-graduate	0	0	2	11	3	27	3	13
	Missing Data	(1)							

More differences appear when the comparison Group C is compared with Group R. Group C students are older, only 57% report "white" as ethnic group (compared to 73% for Group R), and most (65%) report father's education as no more than high school (82% of Group R report fathers with at least some college). Only four of eleven students in Group R are males, although Group C is equally divided between males and females.

Table 14 considers student plans for one year after high school as reported in the pretest. The table is limited to new (first-year) students and comparison Group C. There are evident differences in planning between students in Group R and students in comparison Group C. More Group R students plan to emphasize working than education; the reverse is true for students in Group C. Most Group R students plan no further education or, at the most, on-the-job training. Only 36% of Group R students plan an academic education, while 70% of Group C students have such plans. Most Group A students (65%) also plan to go further in school.

Students attitudes toward school and work at time of entry are also important variables in assessing group comparability. The pretest on the "attitudes toward careers" measure showed that the students in Group R, on the average, expressed a less positive attitude toward careers than did those students in Group C. This might reflect that they did not have the information that they needed or that they felt less sure of themselves in the areas of career knowledge and career planning.*

All groups, both Greenhouse and comparison, had many students with a negative attitude toward their last year's school program (as shown in Table 15). The self-selected students (Group A), who had been actively interested in changing programs, were most negative about their previous program--more than half (61%) had disliked their last year's program more than they had liked it. Group R students and Group C students appeared very similar in their responses to this item--approximately 45% disliked their previous years program while approximately 40% took a neutral position.

To summarize: there were three distinct groups of Greenhouse students used in the evaluation. Group S (second year students) were originally referred to the program by high school staff but brought their previous year's experience in Greenhouse into this year's program. Group A students were

---

* For a full discussion of this item and pre- and post-means see Objective 7 Under FINDINGS later in this section.

TABLE 14

PLANS OF ENTERING STUDENTS AND COMPARISON STUDENTS FOR ONE YEAR AFTER HIGH SCHOOL

PLANS	GREENHOUSE				COMPARISON	
	Self Selected Group A N=18		Referred Group R N=11		Referred Group C N=23	
	f	%	f	%	f	%
Plans for Education or Work:						
Go to school, or mostly go to school but also work	11	65	4	36	12	70
Work, or mostly work but also go to school	4	24	7	64	3	18
Other plans	2	12	0	0	2	12
Missing data	(1)				(6)	
Plans for Type of Educational Program:						
None	3	17	4	36	1	4
Apprenticeship, on the job	2	11	4	36	3	13
Vocational, trade, business school	2	11	0	0	3	13
Tech/vocational at junior college	1	6	0	0	1	4
Academic courses at junior college	2	11	1	9	5	22
Four-year college or university	5	28	2	18	7	30
Other educational program	3	17	0	0	3	13

TABLE 15

RESPONSES OF FIRST YEAR GREENHOUSE AND COMPARISON STUDENTS TO THE QUESTION "HOW DID YOU LIKE SCHOOL LAST YEAR?"

RESPONSE CATEGORY	GREENHOUSE				COMPARISON	
	Self Selected Group A N=18		Referred Group R N=11		Referred Group C N=23	
	f	%	f	%	f	%
1. I disliked almost everything about it.	1	6	4	36	4	17
2. I disliked it more than I liked it.	10	55	1	9	7	30
3. I liked and disliked it about equally.	4	22	5	45	9	39
4. I liked it more than I disliked it.	3	17	0	0	3	13
5. I liked almost everything about it.	0	0	1	9	0	0

volunteers who sought the program as an alternative to regular school. They were very negative about their former program. The third group, Group R, was composed of new students who chose to enter Greenhouse during the 1977-78 school year after they had been referred to it by high school staff. The comparison Group C was formed from the pool of students who had been referred to Greenhouse, had chosen not to enter the program, and had agreed to participate in the evaluation. There appears to be some initial differences between Group R and Group C both in demography and in attitudes toward school and work. Most importantly for this study, it appears that the students who entered Greenhouse from the pool of referred students were more interested in going to work than in continuing in school after high school graduation and had less positive attitudes about their career planning and career knowledge. Students in Group R and students in Group C also had a number of similarities including very similar attitudes toward their previous year's program.

Other Analyses in the Evaluation

Other combinations of Greenhouse students were used in some analyses. Some measures called for consideration only of "graduating seniors." There were 22 students in this category. In some sections the information for all first-year Greenhouse students has been reported. Data on perceptions of the program were collected by questionnaires from two other groups: parents of Greenhouse students and community resource persons.

FINDINGS

Objective 1: Reading Skills. Students can comprehend reading materials on adult encounters in daily living.

Criterion 1: Greenhouse graduating seniors will score at an acceptable level on the Science Research Associates (SRA) Survival Skills in Reading Test.

Standard: If 75% of graduating seniors attain a score of at least 85% (raw score of 51), the criterion will be considered achieved.

Instrumentation. The SRA Survival Skills Test is part of the Science Research Associates criterion-referenced measurement program. Each of the two tests, reading and mathematics, contains 20 objectives. Each objective is measured by three items. The test is geared toward "real world" tasks such as reading medical instructions, following simple directions, using application forms, and interpreting menus and plan schedules. The test is in objective format. Students are provided with a test book and separate answer sheet. The testing time for each test (reading or mathematics) is approximately one hour. However, students are allowed as much time as needed to complete each test.

Methodology. Scores for the 22 graduating seniors were determined.

Results. The distribution of scores is shown in Table 16. Of 21 graduating seniors for whom pre- and post-test scores were available, 15 (71%) received a score of 51 or higher, so the criterion at the preset standard was not quite achieved.

Although neither a comparison in reading skills of Greenhouse students pre-and post- nor a comparison between Greenhouse students and non-Greenhouse students are directly relevant to the objective of acceptable performance in reading, both comparisons could provide indirect evidence to suggest Greenhouse success relative to this reading skills objective.

Since developing reading skills is not one of the primary emphases of an FWL/EBCE program, it is not expected that students will show great improvement in these skills while at Greenhouse, however, it is expected that they will not deteriorate in these skills either (a) relative to their level before coming to Greenhouse, or (b) relative to students who remain in the regular high school. For this reason, the criteria are stated in terms of "no loss" or "at least as well as non-Greenhouse students."

Criterion 2: Greenhouse graduating seniors will show no deterioration or some gain on the Survival Skills Test in Reading.

Standard: If 90% of graduating seniors meet this criterion, the criterion will be considered achieved.

TABLE 16

FREQUENCY DISTRIBUTION OF SCORES BY GREENHOUSE GRADUATING SENIORS ON SRA READING SKILLS TEST

GREENHOUSE GRADUATING SENIORS

Range of Scores	Pretest	Posttest
56 - 60 (60 = maximum)	8	8
51 - 55	4	7
——Acceptance Level Cutoff — — — — —	— — — — —	— — — — —
46 - 50	7	3
41 - 45	0	0
36 - 40	1	1
31 - 35	1	0
below 31	1	2

Instrumentation. SRA Survival Skills Test, described previously.

Methodology. The distribution of gain scores was determined for the 21 graduating seniors for whom pre- and post-tests were available.

Results. The distribution of gain scores is shown in Table 17. The distribution is balanced with about the same number of students showing losses and gains -- most students did not lose or gain more than 3 points. However, since three students (14%) did lose 5 or more points, it can not be said the goal of 90% "no deterioration" was reached.

Three students whose scores dropped were among those with the lowest scores: one student's score dropped from 27 to 14, one from 48 to 40, and one from 34 to 29. It is possible that these students did not attempt to do their best since scores this low would be less likely to deteriorate (two of the scores are close to the chance level). It is also possible that because these students were graduating they were less motivated to make a good effort on the tests.

Criterion 3: Greenhouse experimental group students (first-year returned students) will progress at least as much from pre to post as do comparison non-Greenhouse students as measured on the SRA Survival Skills in Reading Test.

Instrumentation. SRA Survival Skills Test in Reading, described priviously.

Methodology. All Greenhouse and comparison group students were given the SRA Survival tests pre and post. Two Greenhouse students did not complete the post reading test and were eliminated from analyses of that test. Statistical comparisons were made between Group R and the comparison Group C. Results for second year students are also described.

Results. The SRA Reading Skills Test was relatively easy. Sixty-seven students, Greenhouse and comparison, completed both the pretest and posttest. A pretest mean of 49.5 did not allow much room for students to improve before topping out (Table 18). The frequency distribution of scores (Table 19) shows that 16 students out of the sixty-seven had pretest scores above 55 (out of a possible top score of 60). Only ten students had scores below 41.

TABLE 17

DISTRIBUTION OF GAIN SCORES FOR GRADUATING SENIORS ON THE SRA SURVIVAL SKILLS TEST IN READING (N=21)

Points Gained or Lost	Number of Students
-13	1
-8	1
-5	1
-3 to -1	5
0	4
+1 to +3	5
+5	1
+9	2
+17	1

TABLE 18

STATISTICS FOR ALL STUDENTS ON THE SCIENCE RESEARCH ASSOCIATES SURVIVAL SKILLS TESTS

	Reading Skills Test		Mathematics Skills Test	
	Pretest	Posttest	Pretest	Posttest
Number of Students	67	67	69	69
Maximum Possible Score	60	60	60	60
Mean Score	49.51	50.81	42.97	45.96
Standard deviation	7.65	8.79	11.36	10.89
Range	27-59	14-60	15-58	16-60
Correlation (pre/post)	.81		.79	

TABLE 19

FREQUENCY DISTRIBUTION AND STATISTICS OF SCORES ON SRA READING SKILLS TEST

STATISTIC	GREENHOUSE						COMPARISON	
	Returning Group S N = 17		First Year Self-Selected Group A N = 18		First Year Referred Group R N = 9		Referred Group C N = 23	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Range of Scores:								
56-60 (60 = maximum)	4	7	7	13	1	2	4	3
51-55	4	5	6	4	3	3	6	9
46-50	6	2	4	1	2	1	6	5
41-45	0	0	0	0	1	1	3	3
36-40	1	1	1	0	1	1	2	1
31-35	1	0	0	0	1	0	2	1
below 31	1	2	0	0	0	1	0	1
Mean score	48.35	50.18	53.22	55.89	47.33	47.89	48.30	48.43
Standard deviation	8.92	12.16	5.12	2.74	8.53	9.44	7.42	7.42
Mean gain score	1.82		2.67		0.56		0.13	
Standard deviation	6.73		5.44		3.13		4.21	
t-value	1.12		2.08		0.53		0.15	

Examination of the frequency distributions and means (Table 19) shows that little change occurred during the year for students in Group R or for students in its comparison, Group C. However, first-year Greenhouse students (Group R) did improve from pre to post at least as much as (actually slightly more than) did comparison non-Greenhouse students, so the criterion was met. Self-selected Greenhouse students (Group A) showed the most improvement from pre to post: the proportion of high scores in Group A increased; 13 of 18 students in this group had post scores in the top range (56-60 points). Returning Greenhouse students (Group S) also showed improvement over the year.

Criterion 4: Greenhouse students feel that they improve as much in reading skills in this program as comparison students feel that they improve in their program.

Instrumentation. A set of "learning ratings" was included as one section of the Experiential Career Development Survey, a questionnaire developed by the Far West Laboratory. Its purpose is to collect information on various aspects of students' career planning and career knowledge, as well as on their opinions of the amount learned and help received in their current school program. A majority of the questions had been used in former evaluations. A copy of the instrument is located in Appendix 3 (Experiential Career Development Survey, item 7).

The twelve learning ratings ask students to consider how much they had learned in career development areas, basic skills areas, and personal and interpersonal growth areas. Values on the learning ratings ranged from 1 (nothing) to 4 (a lot).

Methodology. The learning ratings were completed by all Greenhouse and comparison-group students at the end of the school year. Table 20 presents the mean scores on basic-skills items (with reading skills appearing in the first line of data) for first-year Greenhouse students and comparison students. Comparisons are made between Group R and Group C.

Results. Greenhouse students rated the amount learned in reading at a higher level than did comparison students, thus the criterion was met.

TABLE 20

STUDENTS' RATINGS OF AMOUNT LEARNED IN THE AREA OF BASIC SKILLS

ITEM Four-point rating scale 1 = nothing 4 = a lot	GREENHOUSE				COMPARISON	
	First Year Self-Selected Group A N = 18		First Year Referred Group R N = 11		Referred Group C N = 21	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Improving reading skills	3.00	0.91	2.82	0.87	2.33	0.86
Improving math skills	2.06	1.00	2.73	0.79	2.19	0.98
Improving listening and speaking skills	3.61	0.70	3.45	0.82	2.50	0.95
Improving writing skills	3.06	0.97	2.82	1.08	2.67	1.06

Interpretation of Data for Objective 1. Although the standard of 75% of graduating seniors "passing" the SRA Survival Skills in Reading Test was not quite achieved (71% passed), there is considerable evidence that the Greenhouse program was at least as effective as the regular high school in developing students' reading skills. The number of students passing the test at the 85% level increased for all groups from pre to post but most noticeably for Groups S (returning Greenhouse students) and A (self-selected Greenhouse students). The Greenhouse program appears to have been helpful in moving students from the middle ranges into the upper levels of competency on this test. There was least change in reading scores for students in the non-Greenhouse comparison Group C. It appears that for students identified as "disaffected," students entering Greenhouse did at least as well as and felt they improved their reading abilities at least as much as did those who did not enter the program.

At least two of the graduating seniors had posttest scores so low that they also appeared to be lacking in test-taking motivation. Aside from these two students, and one other whose score dropped by eight points, all the graduating students showed no deterioration or some gain in reading scores from pre to post.

Objective 2: Quantitative Skills. Students can employ basic computational skills in the context of everyday tasks and problems encountered by adults.

Criterion 1: Greenhouse graduating seniors will score at an acceptable level on the SRA Survival Skills Test in Mathematics.

Standard. If 75% of graduating seniors attain a score of at least 85% (raw score of 51), the criterion will be considered achieved.

Instrumentation: The SRA Survival Skills Test was described in the previous section. The test uses "real world" tasks such as demonstrating the ability to calculate such things as car mileage, take-home pay, and simple budgets.

Methodology. Scores for the 22 graduating seniors were determined.

TABLE 21

FREQUENCY DISTRIBUTION OF SCORES BY GREENHOUSE GRADUATING SENIORS ON SRA MATHEMATICS SKILLS TEST

GREENHOUSE GRADUATING SENIORS

Range of Scores	Pretest	Posttest
56 - 60 (60 = maximum)	4	8
51 - 55	5	4
---Acceptance Level Cutoff---		
46 - 50	4	6
41 - 45	4	0
36 - 40	0	1
31 - 35	1	1
below 31	4	2

Results. The distribution of scores is shown in Table 21. Of 22 graduating seniors, 12 (57%) received a score of 51 or higher; the criterion at the preset standard was not achieved.

As with the previous basic skills objective involving reading, the objective regarding mathematics is stated in terms of acceptable performance. However, comparisons of pre and post performances and of Greenhouse and non-Greenhouse students are included as providing evidence indirectly related to the objective.

Again, developing computational skills is not one of the primary emphases of an FWL/EBCE program, so the criteria are stated in terms of "no loss" or "at least as well as non-Greenhouse students."

Criterion 2: Greenhouse graduating seniors will show no deterioration or some gain on the Survival Skills Test in Mathematics.

Standard. If 90% of graduating seniors meet this criterion, the criterion will be considered achieved.

Instrumentation. SRA Survival Skills Test was described previously.

Methodology. The distribution of gain scores was determined for the 22 graduating students.

Results. The distribution of gain scores is shown in Table 22. Most students increased their scores from pre to post. Eight students gained more than five points. Six students showed losses, but only two students' scores dropped by more than four points. Considering a gain or loss of five points to be appreciable change, it can be stated that 91% of the graduating seniors did not show appreciable deterioration on the SRA Survival Skills Test in Mathematics and that 36% of graduating seniors showed appreciable gains on the test. Thus, if "no deterioration" is considered to be "no appreciable deterioration" as defined here, the criterion was achieved.

Criterion 3: Greenhouse experimental group students (first-year referred students) will progress at least as much from pre to post as do comparison non-Greenhouse students as measured on the SRA Survival Skills Test in Mathematics.

TABLE 22

DISTRIBUTION OF GAIN SCORES FOR GRADUATING SENIORS ON THE SRA SURVIVAL SKILLS TEST IN MATHEMATICS (N=22)

Points Gained or Lost	Number of Students
-15	1
-10	1
-4 to -1	4
0	1
+1 to +4	7
+5 to +10	4
+11 to +23	4

Instrumentation. SRA Survival Skills Test, previously described.

Methodology. The test was administered on a pre/post basis to all students in Greenhouse and in the comparison group. Comparisons are made between Group R and the comparison group, Group C. Results for Group A and Group S students are also described.

Results. Examination of the frequency distribution and means (Table 23) shows that the mean scores for all subgroups are higher on the posttest than on the pretest. The mean gain score for Group R is larger than that for the comparison Group C (nearly 3 points for the former compared to nearly 1 point for the latter), so the criterion was met. Group A (self-selected Greenhouse students) made the greatest gains on this test: 13 of the 18 students passed the posttest at the 85% level or above (51 items). Although only seven Group S students passed the posttest at the 85% level, overall the group gained 4 points on the test.

Criterion 4: Greenhouse students feel that they improve as much in mathematics skills in the Greenhouse program as comparison students feel that they improve in their program.

Instrumentation. The set of "learning ratings" contained in the Experiential Career Development Survey were described under Objective 1, Criterion 3.

Methodology. The scales were completed by all Greenhouse and comparison group students at the end of the school year.

Results. Table 20, presented previously, shows ratings by Greenhouse and comparison-group students on their perception of their improvement in mathematics skills during the school year on the second line of data. Group R students rated the amount they learned at a higher level than did comparison Group C students (2.73 and 2.19 respectively), so the criterion was met.

Interpretation of Data for Objective 2. Although the standard of 75% of graduating seniors "passing" the SRA Survival Skills in Mathematics Test was not achieved (only 57% passed), there is considerable evidence that the Greenhouse program was at least as effective as the regular high school in developing students' computational skills. The Greenhouse students (Group R) felt at

TABLE 23

FREQUENCY DISTRIBUTION AND STATISTICS OF SCORES ON THE SRA MATHEMATICS SKILLS TEST

STATISTIC		GREENHOUSE						COMPARISON	
		Returning Group S N = 17		First Year Self-Selected Group A N = 18		First Year Referred Group R N = 11		Referred Group C N = 23	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
Range:	56-60 (60 = maximum)	2	4	2	6	1	2	4	3
	51-55	4	3	6	7	3	1	1	3
	46-50	2	5	3	2	1	5	2	2
	41-45	2	1	4	1	1	0	6	3
	36-40	2	1	1	2	0	0	2	5
	31-35	1	2	2	0	2	2	2	1
	below 31	4	1	0	0	3	1	6	6
Mean score		42.41	46.65	47.17	51.67	42.18	45.00	40.48	41.43
Standard deviation		12.64	10.97	7.56	6.48	11.75	11.83	12.43	11.58
Mean gain score		4.24		4.50		2.82		0.96	
Standard deviation		9.86		6.16		8.55		6.06	

least as positive about acquiring quantitative skills as did comparison students (Group C). Data from the competency-based mathematics test indicate that Greenhouse students did at least as well in acquiring quantitative skills as did comparison students. All Greenhouse student groups showed some gains, and one-third of the graduating seniors gained five or more points on the test from pre to post.

Objective 3: Oral Communication Skills. Students can listen and communicate effectively in work situations.

Criterion 1: Graduating Greenhouse seniors will score at an acceptable level on the Oral Communication Rating Form.

Standard. If 75% of graduating seniors attain at least the passing score of 10 points, the criterion will be considered achieved.

Instrumentation. The Oral Communication Rating Form, an instrument used by staff within the Greenhouse program to judge students' development, lists six categories of oral communication such as transacting business on the telephone, following complex verbal directions, and effectively stating a problem.

Methodology. For each graduating student, the ability to listen and communicate effectively in work situations was verified by at least two resource persons or Greenhouse staff members through the Oral Communication Rating Form. The student listed various activities related to each of the six categories and the staff person or resource that was involved. The incidents were dated and verified by a staff member. Activities were rated and a total score assigned to the completed form by the student's Learning Coordinator The forms were collected from students files at the end of school year by a FWL staff member.

Results. All twenty-two graduating students passed the oral communications rating scale, so the criterion was met. Six students received the maximum score of 15, seven students received the minimum qualifying score of 10, and the remainder had scores between. The form documents several activities for students that were used in verifying the rating. Some of the forms contained additional staff comments: six state that the students showed great improvement;

four state that students had improved or were effective in certain contexts while needing to improve in others; and two state that students were highly effective in oral communication.

The following comparative criterion, indirectly related to the objective, was also tested.

Criterion 2: Greenhouse students feel that they improve as much in oral communication skills in Greenhouse as comparison students feel that they improve in their program.

Instrumentation. "Learning ratings" were described under Objective 1, Criterion 3.

Methodology. The scales were completed by all Greenhouse and comparison-group students at the end of the school year.

Results. Table 20 shows ratings by Greenhouse and comparison students of the amount they felt they learned in "listening and speaking skills." First-year Greenhouse students rated their improvement higher in Greenhouse than the comparison students rated their improvement in the regular school program. The result of a t-test of the difference between the Group R mean score of 3.45 (out of a possible 4 points) and the comparison Group C mean score of 2.50 was statistically significant at the .01 level; the criterion was met.

Interpretation of Data for Objective 3. It appears that EBCE students felt that their program was more successful in helping to improve oral communication skills than did comparison students. However, no test of growth over the school year was available for the comparison group. Data on the acquisition and use of oral communication skills were collected only for Greenhouse graduating students and were recorded and rated by the Greenhouse staff. Although both measures used for this objective are therefore somewhat less than hard evidence, they do support each other -- Greenhouse students feel that they have learned a lot about oral communication skills, and staff ratings of graduating seniors show that the staff feels the students are competent in this area.

Objective 4: Writing Skills. Students can write an acceptable report or essay of 250 words or more.

Criterion 1: Graduating Greenhouse seniors will score at an acceptable level on the EBCE Writing Scale.

Standard. If 75% of graduating students attain at least the passing score of 8 points, the criterion will be considered achieved.

Instrumentation. The EBCE writing scale is a FWL-developed measure that is part of the guidance and instruction package used by learning coordinators. The scale contains four ratings that are combined to make the final score. Each rating has a maximum value of three, allowing for a maximum total score of 12 points. Eight points is considered a passing score.

Methodology. On entry to the program, or during initial testing sessions, all first-year students (including those in comparison Group C) were asked to complete a 250 word essay. At the end of the school year, or upon exiting from the program, students again wrote an essay. The data were incomplete for graduating Greenhouse seniors as only one second-year graduating student and nine first-year graduating students (out of 22 graduating students) completed both pre and post writing samples.

All essays were graded by Greenhouse staff using the EBCE writing scale. Two staff members evaluated the set of pretests while a third staff member was responsible for the evaluation of all posttest writing samples. The staff members discussed the interpretation of the scale before completing the ratings.

Results. The frequency distribution of the scores for the ten graduating students for whom complete data was available is shown in Table 24. Eight students of the ten achieved posttest scores of 8 points or higher. Although the sample of 10 students is small, the percentage passing (80%) is sufficient to meet the criterion at the preset standard.

Although the objective involves absolute performance of Greenhouse students, comparisons with non-Greenhouse students could provide an interesting measure of Greenhouse effectiveness indirectly related to the objective.

Because development of writing skills is one of the primary goals of the FWL/EBCE program and many of the program activities (e.g., project plans, long-term

TABLE 24

FREQUENCY DISTRIBUTION FOR GRADUATING SENIORS ON THE EBCE WRITING SCALE

Writing Score	Greenhouse Graduating Seniors N = 10	
	Pretest	Posttest
12	0	1
11	1	1
10	0	3
9	1	1
8	3	2
---Acceptance Level Cutoff---		
7	0	1
6	0	1
5	2	0
4	1	0
3	1	0
2	1	0
1	0	0
Mean Score	6.30	9.10
Standard Deviation	2.76	1.76

planning, project products) require considerable writing by students, it is reasonable to project superiority in writing skills by Greenhouse students as contrasted to comparable students remaining in the regular high school.

Criterion 2: Greenhouse students will show more improvement on the EBCE Writing Scale scores from pre to post than will comparison students.

Instrumentation. The EBCE Writing Scale, previously described.

Methodology. (See description of methodology under Criterion 1 of this objective.) Only seven members of Group R completed both pre and post essays.

Results. Table 25 presents the data collected from the writing pretest and posttest. Both Group R students and Group A students showed improvement in the posttest from low pretest scores. The mean gain scores for both groups were significant at the .05 level as were the mean gain scores for Group C students. Although the means on the pretest and posttest show that students in Group R gained considerably more than the students in Group C, no statistically significant difference could be demonstrated (due in part to the small size of Group R and in part to the large standard deviations for both groups).

Criterion 3: Greenhouse students feel that they improve as much in writing skills in the Greenhouse program as comparison students feel that they improve in their program.

Instrumentation. The "Learning Ratings" have been described previously under Student Learning Objective 1: Criterion 3. Resultant data are presented in Table 20.

Methodology. The scales were completed by all Greenhouse and comparison-group students at the end of the school year.

Results. Group R students and comparison Group C students had similar means on this rating (2.82 and 2.67 respectively on a 4-point scale) indicating that Greenhouse students felt they improved their writing skills at least as much as comparison students felt they improved theirs. Thus, the criterion was met.

TABLE 25

FREQUENCY DISTRIBUTION AND STATISTICS OF WRITING SCORES

Writing Score (Maximum score = 12 points)		GREENHOUSE				COMPARISON	
		First Year Self-Selected Group A N = 18		First Year Referred Group R N = 7		Referred Group C N = 21	
		Pre	Post	Pre	Post	Pre	Post
Passing Scores	12	0	2	0	0	0	0
	11	2	2	0	0	0	0
	10	2	4	0	1	0	2
	9	2	1	1	0	2	1
	8	5	7	0	2	0	4
Failing Scores	7	1	1	1	3	2	1
	6	2	1	1	1	3	1
	5	2	0	0	0	2	5
	4	1	0	2	0	4	4
	3	0	0	1	0	8	2
	2	1	0	0	0	0	1
	1	0	0	1	0	0	0
Mean Score		7.50	9.11	4.86	7.57	4.76	5.86
Standard deviation		2.46	1.71	2.67	1.27	1.97	2.37
t-value:							
pretest (Group R & Group C)				0.10			
posttest (Group R & Group C)					1.81		
Mean gain score (pre/post)		1.61		2.71		1.10	
Standard deviation		1.79		2.87		2.14	
t-value		3.83**		2.50*		2.34*	

*Significant at the .05 level
**Significant at the .01 level

Interpretation of Data for Objective 4. Eight of 10 graduating Greenhouse seniors for whom data were available performed at an acceptable level on the EBCE Writing Scale. First-year Greenhouse students, both those in the "true alternative" Group A and those in the referred Group R, improved in their writing skills during the year and felt that the program had been helpful to them in this regard.

Group R students improved more (gain of 2.70 points on a 12-point test) than did comparison students (gain of 1.1 points). All but two of the students in Group A passed the writing test at the end of the year. The evidence indicates that the program was successful in its objective of improving student writing skills.

Objective 5: Career-related Self Awareness. Students will demonstrate awareness and understanding of their current interests, abilities, and values relevant to career goal selection and achievement and will recognize that these may change with further education or experience.

Criterion 1: Graduating Greenhouse seniors will demonstrate a satisfactory level of self-awareness and self-understanding as measured by completion of items on the Career Decision-Making Questionnaire and/or staff ratings on the Career Decision-Making Rating Scales.

Instrumentation. The Career Decision-Making Questionnaire is filled out by students as they approach the last semester in the program. It is used by the Greenhouse staff to evaluate the students' career decision-making progress and to locate areas where attention is needed. The Career Decision-Making Rating Scales are completed by the student's learning coordinator. The form is used to ascertain whether the student has completed the career-development objectives of the program. Both forms are part of the student-management portion of the school curriculum and were not designed for program evaluation.

Methodology. Forms for graduating seniors were completed during the school year and copies were sent to the evaluators. Twelve decision-making questionnaires were completed by students and ten rating scales were completed by learning coordinators. It was not possible to combine the data from the two sources. The twelve questionnaires were content analyzed, and items on the career decision-making ratings were tabulated.

Results. On the questionnaire students were asked: "Why do you believe that this (career) is the best choice for you? How does the career(s) relate to your values, abilities, or other goals?" A summary of student responses is shown in Table 26.

Almost all students related their tentatively chosen career to their interests, goals, and abilities. One student was aware that he/she had not been able to match interests and career as yet while another student was well aware that the career he/she was pursuing was not a good match for interests. All students, except for one who did not respond, showed a definite awareness of the possibility of choosing careers that matched student interests, goals, and abilities.

Ten graduating students did not complete the Career Decision-Making Questionnaire. For these students the Learning Coordinators rated the students on the Career Decision-Making Rating Scale. One rating considers whether the student has examined career options in terms of his/her values and preferred lifestyle. The Learning Coordinators rated nine out of the ten students as passing this item. They felt that all ten of the students were aware of what their current values were and what they cared most about, and that eight out of ten had examined abilities in relation to alternatives that they were considering. However, they felt that two students could not identify the kinds of information needed about themselves before making decisions about the future.

There is, then, considerable evidence that most graduating seniors do demonstrate self-awareness and self-understanding in regards to career goal selection. The criterion was met.

Since the development of career-related self-awareness is one of the emphases of the Greenhouse program, it seems reasonable to expect students to feel that the Greenhouse program helps them in that direction more than does the regular high school.

Criterion 2: Greenhouse students will feel that their program provides them with more opportunities to develop career-related self-awareness than do comparison students.

TABLE 26

RELATIONSHIP OF CAREER CHOICES OF SENIORS TO VALUES, ABILITIES, AND INTERESTS

RESPONSE	Greenhouse Seniors N = 12 Frequencies*
Enjoy it and find it rewarding	4
Have been interested in it for a long time	2
Have necessary talent	2
Have creative ability	1
Must do something I enjoy and am good at	1
Keep my options open, can be combined with my interests	1
Unable to match interests with specific career as yet	1
Choice does not relate to interests	1
No response	1
TOTAL	14

*Number of responses is greater than number of students because some students gave more than one response.

97

Instrumentation. Two self-report rating scales on this topic were included in the Experiential Career Development Survey (ECDS), a questionnaire completed by students at the end of the school year.

Methodology. The questionnaire was given to all students enrolled in Greenhouse as well as to comparison students at the end of the year. Students in Group A and Group S who graduated early filled out a preliminary version of the instrument that contained only some items that appear in the ECDS. Data on the two ratings reported here are available only for students completing the final version of the ECDS.

Results. Responses to the two items are presented in Table 27. All nine second-year students and 23 out of 25 first-year students felt the program had provided much opportunity to learn about their career-related interests, abilities, and values. Most comparison students (16 out of 22) felt that their program had provided little such opportunity. The difference in rating means between Group R and its comparison Group C was highly significant.

Most of the students in the three Greenhouse groups felt that the program had helped them to learn about matching what they knew about themselves with future career possibilities. The students in the comparison Group C gave mainly negative responses to this item and had a significantly lower mean than students in Group R.

Thus, this criterion was met.

Interpretation of Data for Objective 5. Greenhouse students felt that they had learned about their career-related interests, abilities, and values and about matching what they knew about themselves with possible careers. (Greenhouse students perceived considerably more such learning than did students in the regular high school.) These students perceptions of self-awareness in regards to career choices are reinforced by the limited evidence available regarding student behavior: graduating seniors report considering these values when making tentative career choices, and Learning Coordinators rate most graduating students as being aware of these factors.

TABLE 27

STUDENTS' RATINGS OF OPPORTUNITIES TO INCREASE SELF-AWARENESS THROUGH THEIR SCHOOL PROGRAM

Four-point rating scale: 1 = very little 4 = very much	GREENHOUSE			COMPARISON
	Returning Group S N = 9	First Year Self-selected Group A N = 14	First Year Referred Group R N = 11	Referred Group C N = 22
Did your school program this year give you much opportunity to find out more about your career-related interests, abilities, and values?				
Number high responses (three or four)	9	13	10	6
Number low responses (one or two)	0	1	1	16
Mean of four-point scale	3.78	3.21	3.36	2.18
S.D.	0.44	0.58	0.67	0.73
Comparison of groups R and C--t-value			4.48**	
Did your school program this year help you to learn about matching what you know about yourself with future career possibilities?				
Number high responses (three or four)	7	10	9	8
Number low responses (one or two)	2	4	2	14
Mean of four-point scale	3.22	3.14	3.18	2.05
S.D.	0.83	0.86	0.75	0.84
Comparison of groups R and C--t-value			3.78**	

**Significant at the .01 level

Objective 6: Career-planning involvement. Students will engage in activities enabling clarification of their plans for the future.

Criterion 1: Greenhouse students will demonstrate involvement in career planning and career exploration activities by scoring at an acceptable level on the Assessment of Career Development (ACD) Career Planning Involvement Inventory.

Standard. If 80% of Greenhouse students have a mean score of at least "2" on this career planning inventory, then the criterion will be considered achieved.

Instrumentation. The assessment of Career Development is a published, standardized instrument. The test has subtests on occupational knowledge, exploratory occupational experiences, career planning knowledge, and career planning involvement. Only the Career Planning Involvement Inventory is considered to be suitable for use in the EBCE program. On this inventory students are asked to rate the extent to which they have participated in a variety of activities. The three-point scale is as follows:

1 - No, I haven't done this OR the time I spent on this is not worth noting.

2 - Yes, I have done this but only once or twice.

3 - Yes, I have done this several times.

The score for each student is the mean of responses to the 32 items.

Methodology. The test was given on a pre-post basis to first-year (new) students in the program and to comparison students.

Results. The frequency distribution of mean scores on the ACD Career Planning Involvement Inventory is shown in Table 28. It can be seen that at the end of a year at Greenhouse, 14 of 19 (74%) students had a mean score of at least "2" on the inventory, so the criterion at the present standard was not quite achieved. However, it can be seen that Greenhouse students showed considerable improvement in their scores from the beginning of their year at Greenhouse when only 7 of 19 (37%) had a mean score of at least "2".

TABLE 28

FREQUENCY DISTRIBUTION OF MEAN SCORES ON ASSESSMENT OF CAREER DEVELOPMENT-CAREER INVOLVEMENT SCALE

Mean Score on 3-Point Scale	Pretest		Posttest	
	First Year Greenhouse N = 19	Comparison N = 22	First Year Greenhouse N = 19	Comparison N = 22
2.5 - 2.9	1	0	5	1
2.0 - 2.4	6	9	9	7
1.5 - 1.9	7	10	4	12
1.0 - 1.4	5	3	1	2

101

Because involvement in career planning and career exploration activities is one of the major emphases of the Greenhouse program, it is reasonable to expect Greenhouse students to show more such involvement than do comparison students in the regular high school.

Criterion 2: Greenhouse students will report a significantly higher level of involvement in career planning and career exploration activities at the end of the year than do comparison students, as measured by the Assessment of Career Development (ACD) Career Planning Involvement Inventory.

Instrumentation. The ACD Career Planning Involvement Inventory, previously described.

Methodology. The test was given on a pre/post basis to first-year students in the Greenhouse program and to comparison students. In the analysis it was necessary to eliminate some students because of missing pre or post data; only students with both pretest and posttest scores were included in the analysis.

Results. Table 29 shows the means for students in Group A as well as for students in Group R and in its comparison Group C. While the posttest mean for Group R is higher than that for the non-Greenhouse comparison Group C (1.99 and 1.85 respectively), this difference is not statistically significant. Pretest means for the three groups are very similar (range of 1.71 to 1.84) and are all below the midpoint of the three-point scale, indicating a relatively low involvement in career planning activities. At the end of the year, Group A students showed substantial gains with a posttest mean of 2.24. Group R students showed some gains (.27 of a point) while the comparison group showed almost no change (.05 of a point). Only seven members of Group R completed both pretest and posttest. Figure 1 presents a scattergram of the pretest and posttest scores for the 41 students who completed the test. Group A students show the most change from pretest to posttest. Nine out of the twelve Group A students have posttest scores above 2.0, the midpoint of the scale. By this test, all twelve students in Group A reported an increase in career involvement. Scores for the seven Group R students are widely spread and are therefore difficult to compare with Group C. Three of the Group R students gained on the posttest and had posttest scores above 2.0. However, one student's score declined, and three other students with scores at 2.0 or below did not gain at all between pretest and posttest. Comparison group ratings were

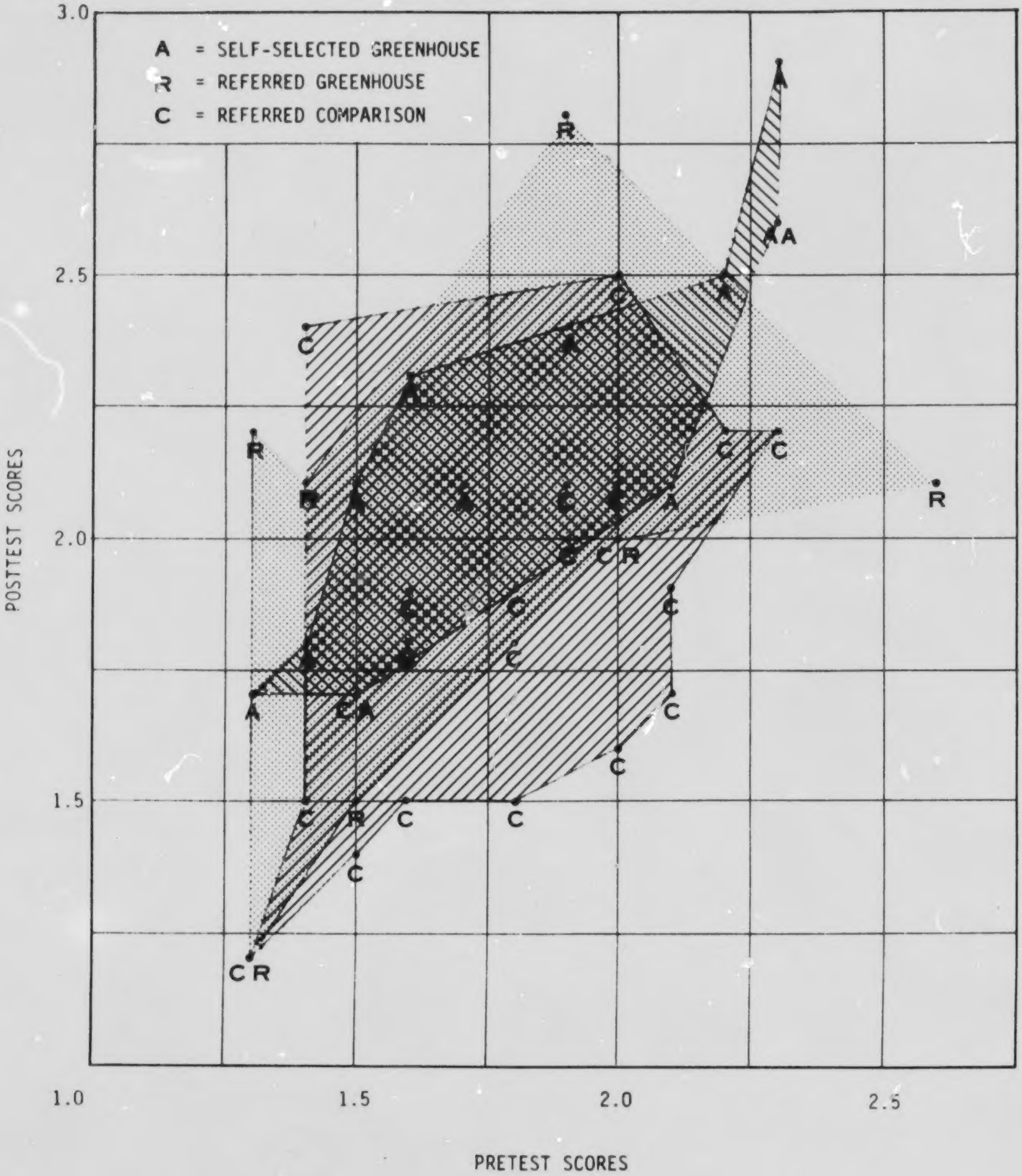
TABLE 29

MEANS OF FIRST-YEAR GREENHOUSE AND COMPARISON STUDENTS ON THE ASSESSMENT OF CAREER DEVELOPMENT (ACD) CAREER INVOLVEMENT SCALE

ACD CAREER INVOLVEMENT SCALE	GREENHOUSE		COMPARISON
	First Year Self-Selected Group A N = 12	First Year Referred Group R N = 7	Referred Group C N = 22
Mean pretest score	1.84	1.71	1.81
Standard deviation pretest	0.38	0.48	0.28
Mean posttest score	2.24	1.99	1.85
Standard deviation posttest	0.38	0.51	0.32
Mean gain pretest to posttest	0.40	0.27	0.05
Standard deviation	0.18	0.56	0.31

FIGURE 1

DISTRIBUTION OF PRETEST AND POSTTEST SCORES OF FIRST-YEAR GREENHOUSE STUDENTS AND COMPARISON STUDENTS ON THE ACD CAREER-INVOLVEMENT SCALE



predominantly low for both the pretest and posttest. Sixteen posttest scores were at 2.0 or below and six above 2.0.

Interpretation of Data for Objective 6. Most Greenhouse students showed an "acceptable level" of involvement in career planning and career exploration activities after a year at Greenhouse and showed increased involvement as compared to the beginning of the year, while most non-Greenhouse comparison students neither demonstrated an acceptable level of involvement nor showed improvement from pre to post.

Of the Greenhouse students, Group A students showed a clear gain on the test. Results for Group R are difficult to interpret because of the small number of students. Three students gained, but four of the seven showed no gains.

Objective 7: Attitude Toward Career Planning. Students will improve their attitude toward career planning.

Criterion 1: Greenhouse students will improve their attitude toward career planning during the year in the Greenhouse program as measured in the Student Attitude Survey.

Instrumentation. The Student Attitude Survey (SAS) was developed by Research for Better Schools (RBS) and has been used extensively with students in the RBS version of EBCE. One section of the SAS is concerned with attitudes toward careers and consists of 22 items measuring attitude toward career knowledge and planning. Each item is to be rated on a five point agree-disagree scale. The career planning attitude score consists of the mean item response.

Methodology. The SAS was administered to all new Greenhouse students on a pre-post basis. Some students were eliminated from the analysis because they did not complete both pretest and posttest.

Results. Table 30 presents the means for the attitude toward careers scale for the first year Greenhouse students and for comparison students. Group R students were more negative in their attitudes at the start of the

105

TABLE 30

MEANS OF FIRST-YEAR GREENHOUSE AND COMPARISON STUDENTS ON THE ATTITUDE TOWARD CAREERS SCALE

STATISTIC Five-Point Rating Scale: 1 = strongly disagree 5 = strongly agree	GREENHOUSE		COMPARISON
	First Year Self-Selected Group A N = 18	First Year Referred Group R N = 8	Referred Group C N = 22
PRETEST:			
Mean	3.66	3.39	3.69
Standard deviation	0.40	0.27	0.40
t-value	--	-1.97	
POSTTEST:			
Mean	3.97	3.72	3.66
Standard deviation	0.37	0.31	0.46
t-value	--	0.30	
PRETEST TO POSTTEST GAIN:			
Mean	0.32	0.33	-0.03
Standard deviation	0.33	0.26	0.35
t-value	4.11**	3.57**	-0.37
F-value (analysis of covariance) Comparing Group R and Group C post scores adjusted for pre score differences		3.87, $p < .06$	

**Significant at .01 level

program than were those in the comparison group. However, at the end of the year they had become more positive in attitude than Group C students, who showed no change over the year. (This difference in pre to post improvement between the two groups is, however, not quite statistically significant at the .05 level.)

Interpretation of Data for Objective 7. Greenhouse students showed considerable change for the positive on this objective. Since Group R was originally more negative than the comparison group, they did not appear significantly different from this group at the end of the year. Group A students, in this instance, appeared to have achieved a more positive attitude than either of the other groups. The results present limited evidence that Greenhouse students did, in fact, improve their attitude toward careers, but they do not establish that their attitude is any more positive than that of a comparison group of non-Greenhouse students.

Objective 8: Career-related information. Students will demonstrate the acquisition of a breadth and depth of information about jobs and careers.

Criterion 1: Students will demonstrate the acquisition of substantial information about at least two jobs in each of three career fields* by satisfactory completion of career-orientation guides, job-information questionnaires, an essay, or other appropriate indications.

Standard. If 80% of Greenhouse students meet this criterion, the criterion will be considered achieved.

Instrumentation. Relevant forms, questionnaires, and other materials available in student files at Greenhouse were assessed.

Methodology. Near the end of the school year, a Far West Laboratory staff member conducted a search of student files at the school site. For each student the number of career fields investigated (to a maximum of three) was recorded, and within these fields the number of jobs explored (to a maximum of two jobs within each career field) was determined.

---

* See American Institutes for Research. The AIR Career Guidance Program. Palo Alto, California, 1973.

Results. From the data collected, there are ten possible pairs giving the number of career-fields and jobs explored.* Table 31 shows the number of students for each pair classification. As a whole, referred students (Group R) had much less evidence in the files of this type of job exploration than did other students. Nine out of the eleven students had documentation of knowledge of no more than two jobs. In contrast, most (13 out of 18) of the volunteer (Group A) students and most (10 of 17) of the returning (Group S) students had documented knowledge of more than two jobs.

Only six students of the total Greenhouse group met the stated criterion (two jobs in each of three career fields). The criterion was not met. However, 18 of the 46 students did explore at least one job in each of three fields.

Because development of knowledge about jobs and careers is one of the major emphases of the Greenhouse program, it is reasonable to expect Greenhouse students to demonstrate knowledge in these areas superior to that of comparison students in the regular high school.

Criterion 2: Greenhouse students will demonstrate knowledge of one job superior to that of comparison students, as measured by items on the Experiential Career Development Survey.

Instrumentation. The Experiential Career Development Survey (ECDS) has already been described. Item 6 of the survey, used as a measure for this criterion, was newly developed for this year's evaluation in an attempt to create an item with direct validity to the experiential nature of Greenhouse learning experience; it is a substitute for a standardized job-knowledge test that had been used unsuccessfully in previous evaluations of EBCE programs. The open-ended item asks the student to state one job or career that he/she knows something about, to name five things that a person does in that job, and to give five steps one would need to follow to start working at the job. The students are also asked to state where they got the information they now have

---

* (0,0), (1,1), (1,2), (2,2), (2,3), (2,4), (3,3), (3,4), (3,5), (3,6)

TABLE 31

RANGE OF CAREER INFORMATION DEMONSTRATED BY GREENHOUSE STUDENTS

Extent of Career Information Obtained		Frequencies		
Number of Career Fields	Number of Jobs in the Field	Returning Group S N = 17	First Year Self-Selected Group A N = 18	First Year Referred Group R N = 11
0	0	1	1	4
1	1	1	1	3
	2 or more	4	3	0
2	2	1	0	2
	3	1	2	0
	4 or more	2	2	0
3	3	1	1	1
	4	2	4	0
	5	1	2	0
	6 or more	3	2	1

about the career and where they could get further information. The exact text of the question can be found in the reproduction of the ECDS in Appendix 3.

Methodology. This question was completed by all students who were in the Greenhouse program at the end of the year and by comparison group students (some students in Group S and Group A graduated early and did not complete the ECDS). Four separate analyses of Item 6 were done. The first consideration was given to the possibility that the jobs mentioned by Greenhouse students might be in some way different from those given by comparison students. A simple tally of job titles by student group was done; then the set of all the job titles was divided into two categories. The results and a rationalization for the groupings will be presented below under "*Results*." The original classification was accomplished by one evaluator, with further amplification, clarification, and reorganization based on input from other staff. There is no attempt to establish any statistical significance for the frequencies in this table--it is presented as descriptive information.

A second analysis was developed from an examination of the response to the question of how students had acquired information about the job. Through content analysis, responses were grouped into nine-categories. Separate tallies were made for each student group. The results are also presented below under "*Results*." A third analysis was of the final question of this set: how the student would get more information about the job. Again responses were placed into categories and tallied by student group. A discussion of this is presented in "*Results*" below.

The fourth analysis, a "knowledge of one job" rating scale, focused on the portions of Item 6 that asked the student to name what a person does at the job and how to prepare for that job. The job-knowledge rating scale used is presented as Exhibit 2. In scoring this item, the set of student forms was placed in random order with student identification removed. Each student's response was rated by two persons. Where ratings differed, a consensus was reached. A third person then repeated the rating process, and where major disagreement (two points) was found with the previous raters, a consensus agreement was once again found. The ratings, therefore, represent a level of agreement among three raters. A reliability check between the first two raters on 30 ratings showed agreement on 11 ratings, a difference of one point on 13 ratings and a difference to two points on 6 ratings. The third staff member differed by two points on nine items.

"Knowledge of One Job" Rating Scale

Value

1. Little or no knowledge -- very general or overly narrow, largely inaccurate, includes inappropriate information.
2. Some knowledge -- general, partially inaccurate, does not encompass the range of job characteristics.
3. Realistic, accurate knowledge though somewhat general. Basically encompasses the range of job characteristics (tasks and skills).
4. Demonstrates depth of knowledge, specificity. In addition to tasks and skills shows understanding of such factors as working conditions, job qualifications and required education or training.

Procedure

1. Examine students' open-end responses to first three portions of item (name a job..., stating things..., give the steps...) for evidence that would support a '3' rating.
2. If evidence is there then look for evidence of "other factors" to support a rating of '4'.
3. If a '3' rating is not justified then determine whether the quality of information provided is worthy of a '2' or a '1'.
4. For steps 2-4 take into account any useful information on the page.

Exhibit 2. "Knowledge of One Job" Rating Scale - Used by Staff to Judge the Apparent Depth of Knowledge Held by a Student About the Job He or She Named.

Results. Table 32 presents student responses to the items "Name a job or career that you know something about." It should be noted that the item does not imply that the student should mention a job that he or she is interested in as a career but only one about which he or she has some knowledge. Inspection of Table 32 shows apparent differences in the type of jobs listed by Greenhouse and comparison-group students. The dimension chosen for presentation in the table is that of conventionality, ranging from jobs to which students get common exposure in school or ordinary experience to less common, non-conventional jobs such as many professional and artistic careers. Although the method for placement of jobs mentioned into the conventional or unconventional categories was largely subjective, it does appear that there is a difference demonstrated between Greenhouse and comparison-group students in the type of careers reported. Greenhouse students as a group mentioned unconventional jobs more frequently than did comparison students, and they showed awareness of a wider variety of specific careers.

How did students find out about these jobs and careers? The information is presented in Table 33. This table, based on a content analysis of open-ended responses, shows that Greenhouse students report "interviewing observing, participating" as the most frequent way that they found out about the job while comparison students are most likely to "talk to relatives," or "other personal contacts." Three Greenhouse students also mentioned "experience" while no comparison students did this. There were also other responses that reflect aspects of the Greenhouse experience: two Greenhouse students mentioned their school program as a source of information and six mentioned the use of books and other written materials that were probably made available to them through the program. The responses were further grouped into "interactive" (those involving some interaction with people or places outside of the school) and "passive" (those involving in-school experiences, reading, etc.). The Greenhouse students report mostly interactive experiences while comparison Group C students report a higher percentage of "passive" learning mechanisms.

How do students feel that they could get more information about these jobs? Content analysis was again used to consider this question. The results, shown in Table 34, show little difference between groups. The most frequent response is to talk to persons, either those working at the job or those who may have useful information. A wide variety of persons, including school counselors, potential employers, relatives, agents, managers, and

TABLE 32

RESPONSES TO ITEM: "NAME A JOB OR CAREER THAT YOU KNOW SOMETHING ABOUT"

TYPE OF JOB THAT YOU KNOW ABOUT	GREENHOUSE			COMPARISON
	Returning Group S N = 10	First Year Self-Selected Group A N = 14	First Year Referred Group R N = 11	Referred Group C N = 22
Conventional, common exposure in school or ordinary experiences	Executive Secretary Autobody	Mechanic (2) Chef Teacher Radio Disc Jockey	Secretary Clerk Waitress	Secretary (3) typing Legal Secretary cooking (2) Child Care Technician Beautician air condition gas attendant car sales radio repair airline hostess Teacher
TOTAL	2	5	3	15
Other--professional, artistic, non-conventional, a few non-practical, perhaps	Police officer Silversmithing physical therapy firefighting Pharmacist Astronomer Photography Boxer	Scriptwriter Dentist special education Physical Therapist Gardener Actor Journalism Locomotive Engineer	cardio-pulmonary photography social work Pharmacist Locksmith Therapist Musician elevator construction	model pilot Forest Ranger Accountant Caterer
TOTAL	8	8	8	5
BLANK	0	1	0	2

TABLE 33

RESPONSES TO ITEM: HOW DID YOU GET THE INFORMATION THAT YOU NOW HAVE ABOUT THIS CAREER OR JOB?

SOURCE OF INFORMATION	GREENHOUSE						COMPARISON	
	Returning Group S N = 9		First Year Self-Selected Group A N = 14		First Year Referred Group R N = 11		Referred Group C N = 22	
	f*	%**	f*	%**	f*	%**	f*	%**
I. Interactive								
A. Interviewing, observing, participating as part of school program.	5	38	7	39	5	45	1	4
B. Work study, BOCES, EOC, or other vocational oriented program.	2	15	2	11	2	18	2	9
C. Working on a job.	0	0	1	6	1	9	2	9
D. Talking to relatives, friends, or other personal contacts about job.	1	8	1	6	2	18	7	30
E. "Experience" or "Own Experiences."	2	15	1	6	0	0	0	0
Total Interactive Responses	10		12		10		12	
II. Passive								
A. School class/school activity.	0	0	2	11	0	0	3	13
B. Reading books, pamphlets, film, etc.	2	15	3	16	1	9	3	13
C. Career Day, Guidance Counselor.	1	8	0	0	0	0	3	13
D. "Just knew."	0	0	1	6	0	0	2	9
Total Passive Responses	3		6		1		11	
Blank	(1)		(0)		(0)		(4)	

*Frequencies are greater than number of students because students could give more than one response.

**Percents are based on the total number of responses, not on the number of people responding.

TABLE 34

RESPONSES TO ITEM: "NAME THREE THINGS THAT YOU COULD DO TO LEARN MORE ABOUT THIS CAREER OR JOB."

RESPONSE	GREENHOUSE			COMPARISON
	Returning Group S N = 10	First Year Self-Selected Group A N = 14	First Year Referred Group R N = 11	Referred Group C N = 22
	f*	f*	f*	f*
Response to question	9	11	10	18
No valid response	1	3	1	6
1. Talk to persons with information (counselors, job contacts, employers, friends, relatives).	5	6	4	6
2. Talk to persons working at job.	5	4	5	8
3. Visit/observe worksite.	2	2	0	3
4. Practice, do job, get job.	2	1	2	3
5. Training, college, vocational school.	4	3	3	5
6. Read books, pamphlets, etc.	3	7	5	5
7. Send away for information, talk to school or find out about job entry procedures.	5	3	3	6

*Frequencies are greater than number of respondents because respondents could list more than one item.

those now working at the job, were mentioned. Collecting information by reading, by sending away for information, or by talking to schools was also an important source of information. Specific training and visiting the job were mentioned less frequently.

How much knowledge did students have about the jobs that they listed? Table 35 presents the results of the use of the "knowledge of one job" rating scale on this set of student responses. The rating scale itself was described in the preceding methodology section (see Exhibit 2, page 92). Table 35 shows that the three Greenhouse groups manifest similar ratings. Sixty-six percent of all responses of Greenhouse students and 64% of Group R students are at the high end of the scale (values 3 or 4). This is considerably better than the ratings for the comparison students, of whom only 25% are at the high end of the scale. A chi-square comparison of Group R and Group C on frequency of high ("3" or "4") and low ("1" or "2") ratings reveals that Group R has statistically significantly higher ratings ($X^2=4.47$, $p<.05$). So, the criterion was met.

Criterion 3: Greenhouse students will feel that they learned more about careers in their program than comparison students will feel that they learned about careers in their program.

Instrumentation. A set of learning ratings was included in the ECDS. This set of scales has been discussed previously under Objective 1 of this section.

Methodology. The scales were given to all Greenhouse and comparison-group students during posttesting.

Results. Table 36 shows student ratings of amount learned in the area of career development/awareness. The last three of the four items are pertinent to this section. On all three items, Greenhouse students showed higher means (i.e., more perceived learning) than comparison students. Greenhouse students in Group A and Group R felt that their program had been highly effective in giving them knowledge about jobs (means of 3.67 and 3.45 on a four-point scale) and about learning how to do a job (3.50 and 3.36 on a four-point scale). A statistical comparison of Group R with Group C showed a highly significant difference between the two groups, with Group C showing a much lower mean on both items. Although the Greenhouse groups also felt that they had learned more about job-seeking skills than did the non-Greenhouse students, the

1:7

TABLE 35

KNOWLEDGE OF ONE JOB DEMONSTRATED BY GREENHOUSE AND COMPARISON GROUPS

"Knowledge of one job" rating scale		GREENHOUSE						COMPARISON	
		Returning Group S N = 9		First Year Self-Selected Group A N = 13		First Year Referred Group R N = 11		Referred Group C N = 20	
Level	Interpretation	f	%	f	%	f	%	f	%
1	Little or no knowledge	2	22	1	8	3	27	3	15
2	Some general knowledge--partially inaccurate	1	11	3	23	1	9	12	60
3	Realistic knowledge of tasks and skills--general	2	22	5	38	4	36	3	15
4	Depth of knowledge of tasks and skills. Awareness of factors such as working conditions, training and qualifications.	4	44	4	30	3	27	2	10

Chi-square test comparing Group R and Group C on frequency of high ("3" or "4") and low ("1" or "2") ratings: $x^2 = 4.47$; $p < .05$

TABLE 36

RATINGS OF LEARNING IN THE AREA OF CAREER DEVELOPMENT/AWARENESS

ITEM Four-point rating scale: 1 = nothing 4 = a lot	GREENHOUSE				COMPARISON		t-value Group R with Group C
	First Year Self-Selected Group A N = 18		First Year Referred Group R N = 11		Referred Group C N = 21		
	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	
Planning for a career or careers	3.22	0.65	3.27	0.90	2.29	0.78	3.21**
Learning about careers and jobs	3.67	0.49	3.45	0.69	2.19	1.03	3.65**
Learning how to do a particular job	3.50	0.62	3.36	0.92	2.24	1.04	3.01**
Learning job-seeking skills	3.00	0.91	3.09	0.83	2.45	0.94	1.88

**Significant at the .01 level

difference between Group R and Group C on this item was not significant. There is considerable evidence, then, that this criterion was met.

Interpretation of Data for Objective 8. Three criteria have been presented relative to Student Learning Objective 8. First: Students will demonstrate acquisition of information about jobs. The search of students files for documentation of acquired career information located less evidence than had been projected. Most students had some record, but only six students met the original standard of six jobs in three career fields. It may be that the problem lies in lack of documentation in the files, rather than in lack of student gains in knowledge. One factor leading to lack of documentation might be lack of sufficient writing skills. This is supported by the fact that Group R students, who have lower writing skills means than the other EBCE students, had less information in their files.

Greenhouse students did feel that they had learned a lot in their program about careers and jobs and about how to do a specific job. Responses on two rating scales were much higher for Group R students than for comparison Group C students.

Support for superior Greenhouse learning in the area of career knowledge is shown in the responses to ECDS question 6, an open-ended item asking for student input on knowledge of one job. Greenhouse students, as a group, listed a wide variety of jobs, and had learned about these jobs mainly through active participation and observation. They also had information of greater depth and accuracy about the named job than did comparison students.

It is interesting to note that both Greenhouse and comparison students felt that the way to learn more about this job was to talk to people about it. Both groups see this as the most valuable way to get information, although the comparison students do not report as much opportunity to do so.

Objective 9: Career decision-making. Students will demonstrate an ability to apply principles of informed decision-making and planning in formulating their post high school career and educational goals.

Criterion 1: Greenhouse seniors will demonstrate their ability to apply principles of informed decision-making and planning by satisfactory completion of items on the Career Decision-Making Questionnaire and satisfactory ratings from learning coordinators on the Career Decision-Making Rating Scales.

Standard. If 80% of Greenhouse seniors meet this creterion, the criterion will be considered achieved.

Instrumentation. The two instruments were described under Objective 5.

Methodology. Separate analyses were done for the twelve decision-making questionnaires and for the ten career decision-making ratings.

Results. Eleven of the twelve Greenhouse students who completed the Decision-Making Questionnaire had specific post high-school plans as shown in Table 37. Nine plan to continue their education at community or four-year colleges. Two will pursue their studies at a specialized school or training institution,and one student will work after graduation. (It was reported by the learning coordinator that this student had obtained a job in a field for which he had trained -- autobody mechanics.) Only one student did not have clearly formulated plans for the immediate future.

The students considered few options outside of education or work. Four did not consider any option other than education. These students responded to the question "What options did you consider when making these plans?" by listing several schools they considered and the factors that influenced their decisions. One student considered military service as an option, one said she might "take off a year," and one said he considered entering school earlier (this student plans to travel and work for about six months before continuing his education).

The twelve students considered 27 different career fields; ten of the students had selected careers for which to prepare (see Table 38).

Learning Coordinators rated ten students who had not completed the Career Decision-Making Questionnaire on the Career Decision-Making Rating Scales. They felt that eight of the ten students could state their career plans for the coming year; six students had sufficient information to make a decision and had anticipated possible barriers. They reported that seven students out of the ten know how to make an informed decision. The criterion was, then, achieved at the preset standard.

TABLE 37

POST HIGH SCHOOL PLANNING BY GREENHOUSE SENIORS

PLAN	GREENHOUSE SENIORS Frequencies N=12
Will work during summer, attend college or other school in fall	4
Will attend school in fall, summer plans not specified	4
Will attend special training school and work part-time, summer plans not specified	1
Will work (as autobody mechanic) while training as professional athlete	1
Will vacation during summer, attend school in fall	1
Summer plans not specified, other plans unclear (possibly college)	1

122

TABLE 38

CAREER CHOICES OF TWELVE GREENHOUSE SENIORS AT TIME OF LEAVING THE PROGRAM

Respondents	Careers Considered	Number	Respondents	Careers Selected	Number
A	physical therapy	1	A	physical therapy assistant	1
A	hotel/restaurant management	1			
A	interior/exterior decorating	1			
AEIJ	business management/adminis.	4			
B	photography	1	B	photography	1
B	acting	1			
C	oceanography	1			
C	conservation	1			
D	autobody mechanic	1	D	autobody mechanic	1
D	professional boxer	1	D	professional boxer	
EF	fashion design	2			
E	fashion modeling	1	E	executive secretary	1
F	fashion illustrator	1			
F	jewelry design and silver smithing	1	F	jewelry design and silver smithing	1
GK	radio and music industry	2			
G	teaching	1			
H	high energy research physics	1	H	high energy research physics	1
I	law	1	I	law	1
IJ	art	2			
J			J	business	1
K	film	1			
K	communications	1			
L	police science	1	L	police science	1
12	--	28		--	9

Because development of ability to apply decision-making and planning skills to formulation of career goals is one of the major emphases of the Greenhouse program, it is reasonable to expect Greenhouse students to demonstrate greater ability in this area than do comparison non-Greenhouse students.

Criterion 2: Greenhouse students will have better formulated plans than comparison students, as measured at the end of the year by self-report items on the Experiential Career Development Survey.

Instrumentation. The ECDS has been described previously. Students were asked to complete multiple-choice items about post high-school plans for work and education -- the same items had also been filled in upon program entry. Another multiple choice item asked the students to rate the extent of his/her career planning to date.

An open-ended question asked students about their "current career plans." Responses to this question were coded on two dimensions using a scheme developed and used with a similarly worded question in a previous evaluation*. The first step in the coding was to determine whether there was a single plan (that might have several steps in it) or whether a student had multiple or alternate plans. Then the response was examined for the number of different elements mentioned: going to work, going to school, or engaging in a particular type of career or job (to do or be a particular person).

Methodology. All students answered the multiple-choice items on plans for work or school, but only those students completing the new ECDS instrument answered the other questions.

Results. Little shift in one year post-high-school plans was demonstrated by student groups, as shown in Table 39. Most Greenhouse Group A students and comparison Group C students reported post-high-school plans stressing education rather than work. This was not the case for students in the experimental Group R. Only four Group R students emphasized going to school over working.

Neither the question asking about type of post-high-school education planned nor the question seeking plans for five years after high school revealed any appreciable differences between Group R and Group C or any substantial shifts in any groups from pretest to posttest.

---

* Further details about the coding scheme can be found in the EBCE:Final Evaluation Report, FY 74, Volumes I and II.

TABLE 39

STUDENTS' PLANS FOR WORK AND EDUCATION FOR ONE YEAR AFTER HIGH SCHOOL

RESPONSE*		GREENHOUSE				COMPARISON	
		First Year Self-Selected Group A N = 17		First Year Referred Group R N = 11		Referred Group C N = 14	
Pretest	Posttest	f	%	f	%	f	%
work	work	1	6	4	36	1	7
school	school	8	47	1	9	8	58
work	school	3	18	3	27	2	14
school	work	1	6	3	27	1	7
other	school	2	12	0	0	0	0
other	work	0	0	0	0	2	14
school	other	2	12	0	0	0	0
Missing either pretest or posttest		(1)				(9)	

*Response categories have been combined--work category includes work plus some school. School category includes school plus some work.

Students were asked to respond to the multiple-choice question, "What best describes your current planning for the future?" Responses for the four student groups are shown in Table 40. Responses for the comparison-group students most closely resemble those of second-year Greenhouse students; for each group about 80% report serious, although not yet finalized, levels of planning. In constrast, both the groups (volunteers and referrals) of first-year Greenhouse students report a range of responses, with many students (50% of volunteers, Group A) reporting that they are just beginning to plan for the future. This might indicate that Greenhouse students are more aware than comparison students of the necessity to make plans and of the complexity of those plans.

More information on the complexity of student plans is provided by responses to an open-ended question, "What are your current career plans?" The coding scheme used with this question was described in the preceding methodology section. Table 41 presents the resultant data. Students in Group S (second year) more often reported multiple plans (50%). Students in comparison Group C were the most likely of the four groups to have a single plan with only one or two elements mentioned. Few (seven) Group R students responded to the question. As has been noted in some other items, the responses of Group R students were widely spread; one student reported the most complex multiple plan of any student while four students had single plans with only one or two elements mentioned.

The evidence from the ECDS suggests, then, that this criterion was not met.

Criterion 3: Greenhouse students will feel that they learned more about career decision-making in their program than comparison students feel that they learned in their program.

Instrumentation. The set of learning ratings was previously described under Student Learning Objective 1, Criterion 3. All Greenhouse students and all comparison students were asked to complete these scales.

Results. Table 36, previously presented, shows student ratings of four items on career development/awareness. On the rating of how much they learned in the area of career planning, both first-year student groups had far higher mean item ratings than did the comparison group (3.22 and 3.27 compared with 2.29 for the comparison group). The t-test showed a highly significant difference between Group R and Group C. Thus, the criterion was met.

126

TABLE 40

STUDENTS' RESPONSES TO QUESTION: "WHAT BEST DESCRIBES YOUR CURRENT PLANNING FOR THE FUTURE?"

RESPONSE	GREENHOUSE						COMPARISON	
	Returning Group S N = 10		First Year Self-Selected Group A N = 14		First Year Referred Group R N = 11		Referred Group C N = 22	
	f	%	f	%	f	%	f	%
I have done hardly any planning	0	0	0	0	1	9	0	0
I'm just beginning to do some serious planning	2	20	7	50	3	27	5	23
I have some plans but they're not fully thought out	4	40	3	21	3	27	11	50
I have some plans and I'm following them up	4	40	4	29	4	36	6	27

TABLE 41

COMPLEXITY OF STUDENTS' CAREER PLANS AT END OF YEAR

PLAN	GREENHOUSE						COMPARISON	
	Returning Group S N = 10		First Year Self-Selected Group A N = 14		First Year Referred Group R N = 7		Referred Group C N = 19	
	f	%	f	%	f	%	f	%
Single plan								
one element (plan for type of career, for work, or for study)	1	10	5	36	2	29	7	37
two elements	1	10	3	21	2	29	6	32
three elements	3	30	1	7	1	14	2	10
Total percent		50		64		72		79
Multiple plans								
one element (plan for type of career, for work, or for study)	2	20	3	21	1	14	3	16
two elements	3	30	2	14	0	0	1	5
three elements	0	0	0	0	1	14	0	0
Total percent		50		35		28		21

Interpretation of Data for Objective 9. There was evidence from student questionnaire responses and learning coordinator ratings that Greenhouse students showed an ability to apply principles of informed decision-making and planning in formulating their post high school career and educational goals. Twelve of the graduating students completed a Career Decision-Making Questionnaire; all but one had definite plans for the immediate future, although in some cases this simply meant plans for education. These twelve graduating students had considered 27 different jobs; ten were pursuing a tentative choice. Learning Coordinators tentatively rated ten other graduating students and felt that eight were basically competent in decision-making. Greenhouse students felt that the program had helped them in planning for the future considerably more than non-Greenhouse comparison students felt their program had helped them.

Little difference was revealed between the level of planning of Greenhouse students and comparison students through the use of questionnaire items. Minor trends were shown toward increased planning for more education for Greenhouse students at the posttest and for more complex planning by second-year students. Since many of the first-year Greenhouse students were only in the tenth and eleventh grades, it is to be expected that future plans are just emerging.

Objective 10: Attitude toward learning and education. Students will develop a positive attitude toward school, learning, and education.

Criterion 1: Greenhouse students will show a positive attitude toward their Greenhouse school program and toward education as measured by the School Opinion Scales.

Standard: If 75% of Greenhouse students score at or above the midpoint on the School Opinion Scales, the criterion will be considered achieved.

Instrumentation. The School Opinion Scales were developed by FWL to provide an instrument with items suitable for measuring attitudes of students toward learning and toward their school program. There are four subscales --

student learning autonomy (ten items), attitude toward peers (six items), attitude toward staff (eight times), and long-term attitude toward school (six items). Each item is rated on a five point agree-disagree scale. The subscale score is the mean item response when items are scored in a "school positive" direction. That is, the higher the mean item-score the more positive is the attitude toward school. A discussion and replication of the instrument is in Appendix 3.

Methodology. The School Opinion Scales were given to all first-year Greenhouse students and comparison-group students. At the time of the pretest they were asked to rate their former program, and during the posttest they were asked to rate the program that they were currently attending.

Results. Table 42 presents the distribution of ratings on each of the four scales for all Greenhouse students. (Each person's rating score for each scale is actually a mean derived from several items on that scale.) It can be seen that the percent of Greenhouse students whose mean ratings were at least at the midpoint of the 5-point rating scale were 100% for each of the four scales. Thus, the criterion was met.

Criterion 2: Greenhouse students will have a significantly more positive growth in attitude toward education and toward their current school program than will comparison students, as measured by the School Opinion Scales.

Instrumentation. The School Opinion Scales, previously described.

Methodology. See description under Criterion 1 of this objective.

Results. Table 43 presents the pretest and posttest scale scores for Group A, Group R, and Group C. Group C scores were largely unchanged over the year. The statistical comparison of Group R and Group C showed no significant differences on the scales on the pretest but highly significant differences in three out of the four subscales on the posttest at the end of the year. Thus, there is considerable evidence that Greenhouse students showed more improvement in attitudes from pre to post than did comparison students; the criterion was met. Group A (self-selected) students showed as much or more gain on each scale as Group R (referred) students. As a whole, therefore, Greenhouse first-year students felt very positive about the opportunities for self-control over their learning that was available in their program and felt

TABLE 42

FREQUENCY DISTRIBUTION OF GREENHOUSE STUDENTS' RATINGS OF THEIR SCHOOL PROGRAM

Program Ratings Five-Point Scale 1=strongly negative 5=strongly positive	Scale A: Student Learning Autonomy (mean of 10 items)	Scale B: Long-Term Attitude Toward School (mean of 6 items)	Scale C: Attitude Toward Peers (mean of 6 items)	Scale D: Attitude Toward Staff (mean of 8 items)
4.5 - 5.0	21	12	6	7
4.0 - 4.4	5	5	13	14
3.5 - 3.9	1	4	8	6
3.0 - 3.4	0	6	4	0
2.5 - 2.9	0	0	0	0
Acceptance Level Cutoff				
2.0 - 2.4	0	0	0	0
1.5 - 1.9	0	0	0	0
1.0 - 1.4	0	0	0	0
0.5 - 0.9	0	0	0	0
0.0 - 0.4	0	0	0	0
Mean	4.6	4.1	4.1	4.3

TABLE 43

STUDENTS' RATINGS OF LAST YEAR'S AND THIS YEAR'S PROGRAMS ON THE SCHOOL OPINION SCALES

PROGRAM RATINGS Five-point scale: 1 = strongly disagree 5 = strongly agree		LAST YEAR (PRE)*			THIS YEAR (POST)*		
		GREENHOUSE		COMP.	GREENHOUSE		COMP.
		1st Yr Self-Sel Group A N = 18	1st Yr Referred Group R N = 9	Referred Group C N = 23	1st Yr Self-Sel Group A N = 18	1st Yr Referred Group R N = 9	Referred Group C N = 23
Scale A							
Student learning autonomy (mean of 10 items)	$\overline{X}$	2.51	2.98	3.32	4.71	4.46	3.24
	SD	0.66	1.00	0.30	0.24	0.30	0.44
	t-value		-1.02			7.52**	
Scale B							
Long-term attitude toward school (mean of 6 items)	$\overline{X}$	3.20	2.97	3.30	4.33	3.63	3.25
	SD	0.74	0.79	0.64	0.51	0.48	0.60
	t-value		-1.27			1.68	
Scale C							
Attitude toward peers (mean of 6 items)	$\overline{X}$	2.65	3.28	3.29	4.09	4.09	3.14
	SD	0.75	0.99	0.59	0.56	0.19	0.57
	t-value		-0.04			7.04**	
Scale D							
Attitude toward staff (mean of 8 items)	$\overline{X}$	2.34	2.76	2.78	4.34	4.14	2.54
	SD	0.73	1.04	0.49	0.43	0.41	0.57
	t-value		-0.05			7.59**	
Total (mean of 30 items)	$\overline{X}$	2.63	2.98	3.17	4.41	4.13	3.04
	SD	0.57	0.85	0.33	0.35	0.28	0.36
	t-value		-0.65			8.18**	

*Last year's program would, of course, be the regular high school, while this year's program is Greenhouse for the Greenhouse students.

**Significant at the .01 level

positive about the staff and students in Greenhouse. Group A students also showed a large increase (from 3.20 to 4.33 on a five-point scale) in their long-term attitude toward school. Group R students had originally been more negative than Group C students on this subscale, but they became more positive than Group C students by the end of the year. (Analysis of covariance, however, indicates that this difference in change is not statistically significant at $p < .05$.) As is shown in Figure 2, there are clear changes for the positive in Greenhouse students on all four scales and an evident lack of change in comparison students.

Criterion 3: Greenhouse students will have a significantly more positive attitude toward their current program than comparison students have toward their program.

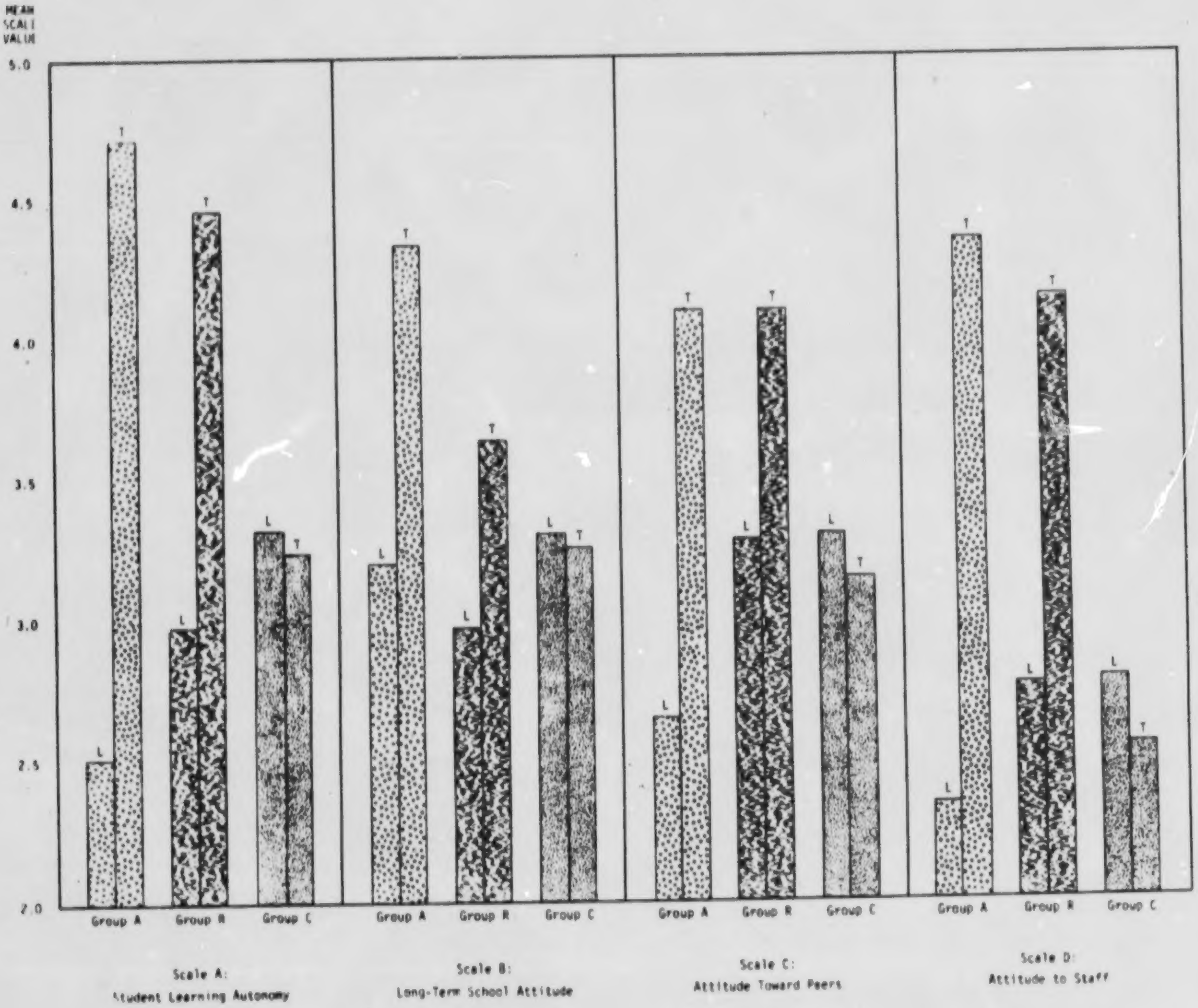
Instrumentation. Upon entry to the program, students were asked for their opinion about school both "last year" and "in the years before last year." The question was repeated at the end of the school year when students were asked how they liked school "this year." A five-point rating scale allowed for choices from "I disliked almost everything about it" (value 1) to "I liked almost everything about it" (value 5). The complete statement of the item can be found in Appendix 3.

Methodology. The questions were completed by all Greenhouse students and by comparison students. However, results are reported only for first-year Greenhouse students and comparison students in order to examine the effect of the Greenhouse on new students.

Results. Table 44 presents the means for three groups on the ratings of "liking for school" at three points in time. Figure 3 shows the same information graphically. The three groups appear similar on students' self-report of "attitude toward school" for previous years, and for the year prior to entering the program. However, both students in Group A and students in Group R had a far more positive attitude toward their current program than did students in Group C. The statistical comparison of Group R and Group C (shown in Table 44) shows a highly significant gain for the students in Group R. Thus, the criterion was met.

FIGURE 2

COMPARISON OF SCALE SCORES ON THE SCHOOL OPINION SURVEY



L = rating of last year's program (regular high school)

T = rating of this year's program (Greenhouse for Groups A & R, regular high school for Group C)

TABLE 44

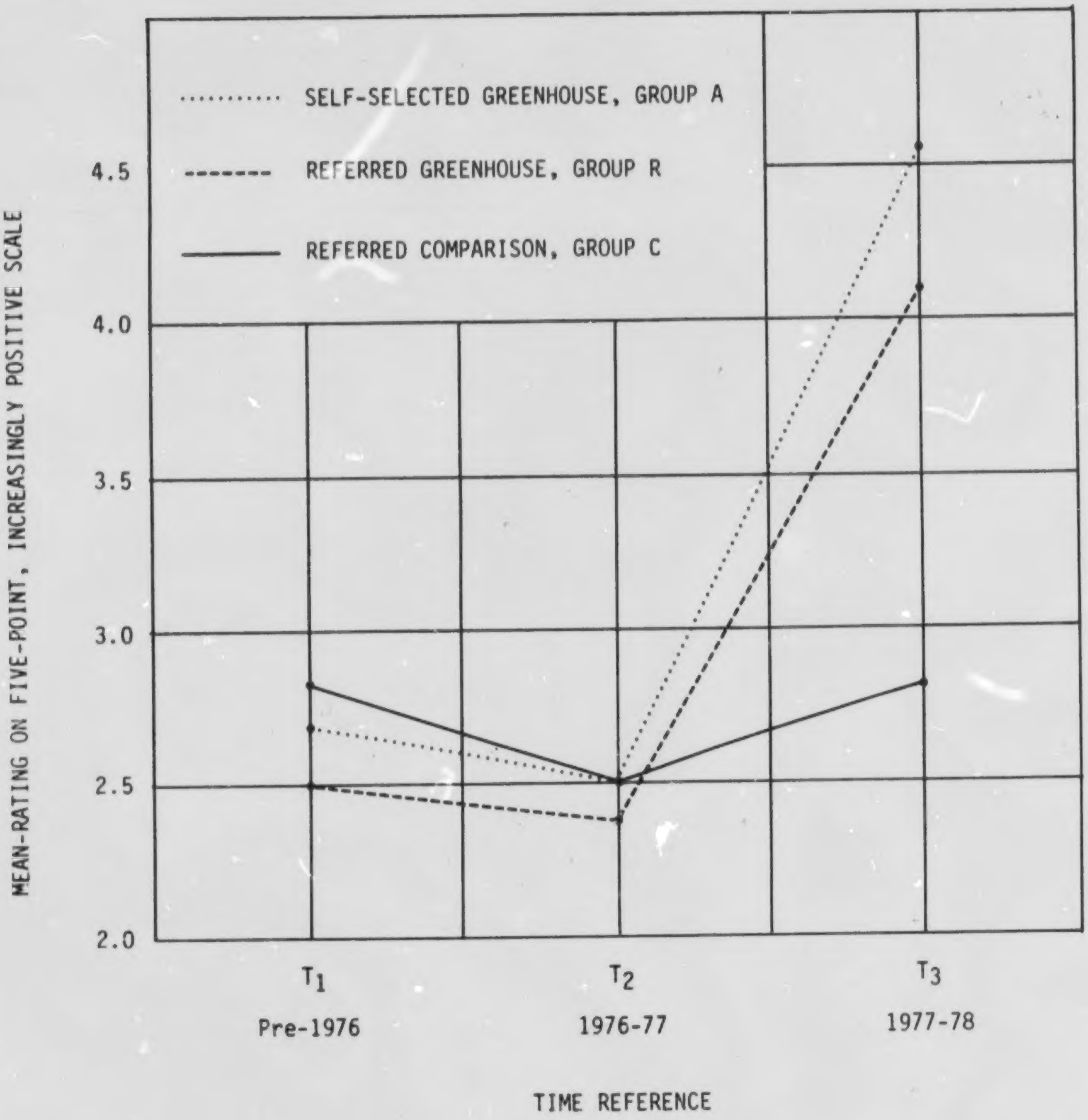
STUDENTS' SELF REPORT ON ATTITUDE TOWARD SCHOOL OVER THREE PERIODS OF TIME

How did you like school? Five-point rating scale: 1 = dislike 5 = like		GREENHOUSE		COMPARISON
		First Year Self-Selected Group A N = 18	First Year Referred Group R N = 11	Referred Group C N = 22
Before last year	$\overline{X}$	2.67	2.55	2.82
	SD	1.03	1.21	1.05
	t-value			-0.67
Last year	$\overline{X}$	2.50	2.36	2.50
	SD	0.86	1.29	0.96
	t-value			-0.34
This year	$\overline{X}$	4.56	4.09	2.82
	SD	0.62	0.83	1.14
	t-value			3.28**

**Significant at the .01 level

FIGURE 3

GRAPHIC PRESENTATION OF FIRST-YEAR GREENHOUSE AND COMPARISON STUDENTS' SELF-REPORTED ATTITUDE TOWARD SCHOOL



Criterion 4: Greenhouse students see their program as significantly more helpful than comparison students see their program.

Instrumentation. Upon entry to the program, students completed a set of items on ways that their previous program had been helpful to them. At the end of the year, or upon leaving the program, the students completed the same set of items but this time rated the helpfulness of their current program. Each of the five items were to be rated on a four-point (agree-disagree) scale.

Methodology. The scales were completed by all Greenhouse groups and by the comparison group. Results are only reported for first-year Greenhouse students and for the comparison group in order to examine the effect of Greenhouse on new students.

Results. Table 45 presents the item means for the three student groups. Only the first three items will be discussed here -- the remaining items are more pertinent to later presentations. On all these three items (related to work, college, and future planning) it can be seen that Greenhouse students' ratings of their program's helpfulness and value are higher than comparison students' ratings of their program. (For two of these items, the more positive ratings by Group R are statistically significantly higher than the ratings of Group C.)

For the comparison Group C students, there was almost no difference in rating the previous year's and the present program on any of the 3 scales. In contrast, the Greenhouse groups showed positive gains on each item.

Thus, there is considerable evidence to show that the criterion was met.

Interpretation of Data for Objective 10. It is evident that, over the year, Greenhouse students improved their attitude toward future learning and education while comparison students had little change in attitude. Greenhouse students responded positively to the opportunity to plan their own learning (learning autonomy) and developed positive attitudes toward staff and peers. They also felt that Greenhouse had been quite helpful to them in such areas as preparing for work, for college, and for the future.

The attitudes of Greenhouse students toward the Greenhouse program were much more positive in these areas than either their attitudes toward their

TABLE 45

STUDENTS' OPINIONS OF WAYS THAT THEIR SCHOOL WAS HELPFUL

ITEM		LAST YEAR (PRETEST)			THIS YEAR (POSTTEST)		
		GREENHOUSE		COMP.	GREENHOUSE		COMP.
Four-point scale: 1 = strongly disagree 4 = strongly agree		1st Yr Self-Sel Group A N = 18	1st Yr Referred Group R N = 11	Referred Group C N = 21	1st Yr Self-Sel Group A N = 18	1st Yr Referred Group R N = 11	Referred Group C N = 21
The school helped to prepare me for work	$\overline{X}$	2.00	2.00	2.33	3.28	3.00	2.24
	SD	0.84	0.77	0.80	0.83	0.77	0.77
	t-value	-1.14			2.66*		
The school helped to prepare me for college	$\overline{X}$	2.22	1.91	2.64	3.00	2.73	2.41
	SD	0.88	0.70	0.58	0.59	0.65	0.59
	t- value	-3.17**			1.41		
The school helped me to decide what I want to do after high school	$\overline{X}$	1.94	2.09	2.36	3.06	3.00	2.27
	SD	0.94	1.04	0.85	0.80	0.63	0.83
	t-value	-0.81			2.56*		
The school helped me to better understand myself	$\overline{X}$	1.67	2.00	2.50	3.44	3.55	2.36
	SD	0.69	0.77	0.60	0.62	0.69	0.73
	t-value	-2.05*			4.48**		
The school helped me to get along better with others	$\overline{X}$	2.22	2.27	2.73	3.44	3.45	2.50
	SD	0.94	0.65	0.70	0.70	0.52	0.73
	t-value	-1.80			3.82**		

*Significant at the .05 level
**Significant at the .01 level

non-Greenhouse program or the attitudes of comparison students toward their non-Greenhouse program. On the whole, there is considerable evidence to suggest that Greenhouse has met its objective of improving student attitudes toward education.

Objective 11: Interpersonal Skills. Students will improve in those interpersonal skills necessary in making the transition from youth to adulthood.

Criterion 1: Greenhouse students will show improvement in getting along with others, as measured by self-report items.

Standard. If 75% of Greenhouse students rate their amount learned in getting along with others as "3" or above on the 4-point scale, the criterion will be considered achieved.

Instrumentation. The instrumentation consists of three of the learning ratings on the Experiential Career Development Survey (Table 46) and the ratings of school helpfulness, Table 45, discussed above.

Methodology. The methodology is as described previously under Objective 1, Criterion 4.

Results. Interpersonal skills were examined through the first three self-report items on Table 46. Greenhouse students rated their improvement and amount learned in interpersonal skills as very high (mean ratings ranged from 3.27 to 3.72 on a 4-point scale). For the three items respectively, 25, 27, and 25 of the 29 first-year students rated their learning as "3" or above. The percents are: 86%, 93%, and 86%, so the criterion was met.

Resource persons felt that students had had much opportunity to improve their relationships with adults, as shown in the second line of data in Table 47. Twenty-six of 33 respondents felt there had been "some" or "a lot" of learning opportunity in this area. They also saw the program as aiding students in accepting many different ideas and backgrounds of people. Less opportunity was seen to improve interpersonal skills with students, but this may be because most often a student's visit to a site was on an individual basis where the resource person worked with only one student at a time.

TABLE 46

STUDENTS' RATINGS OF AMOUNT LEARNED IN THE AREAS OF PERSONAL AND INTERPERSONAL GROWTH

ITEM Four-point rating scale: 1 = nothing 4 = a lot	GREENHOUSE				COMPARISON		t-value Group R and Group C
	First Year Self-Selected Group A N = 18		First Year Referred Group R N = 11		Referred Group C N = 21		
	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD	
Improving skills in working with other students	3.44	0.70	3.27	0.79	2.86	1.01	1.18
Improving skills in working with adults	3.72	0.46	3.36	0.81	2.29	0.96	3.18**
Accepting many different ideas and backgrounds of people	3.39	0.85	3.55	0.82	2.76	0.77	2.68*
Thinking through and solving problems	3.61	0.70	3.18	0.87	2.76	0.94	1.23

*Significant at the .05 level
**Significant at the .01 level

TABLE 47

RATINGS BY RESOURCE PERSONS OF STUDENT OPPORTUNITIES FOR PERSONAL AND INTERPERSONAL GROWTH AT RESOURCE SITES

How much opportunity did the students have to learn in the area of?:	FREQUENCIES*				Mean On Four Point Scale
	None	A Little	Some	A Lot	
Improving skills in working with other students	13	7	4	9	2.27
Improving skills in working with adults	2	5	13	13	3.12
Accepting many different ideas and backgrounds of people	4	7	4	17	3.06
Thinking through and solving problems	4	7	8	15	3.00

*Number responding varies from 32 to 34

Because the Greenhouse program does emphasize skills in getting along with and working with others, it is reasonable to expect that Greenhouse students will show more improvement in such skills than will comparison non-Greenhouse students.

Criterion 2: Greenhouse students will have significantly greater growth in "working with adults" and in "getting along with others" than will comparison students, as measured by self-report items.

Instrumentation. As discussed above under Criterion 1.

Methodology. The methodology is as described previously under Objective 1, Criterion 4, and Objective 10, Criterion 4.

Results. Improvement of interpersonal skills was examined through the first three self-report items on Table 46. (The fourth item will be discussed in the next section.) Greenhouse students rated all three items more positively than did comparison students. Significant differences in favor of Group R were found for "improvement in skills in working with adults" and for "accepting many different ideas and backgrounds of people." Although Greenhouse students gave high ratings to working with other students, no significant differences were found between Group R and Group C.

Table 45 shows items asking for student ratings of how the school program had helped the student in self-understanding and in getting along with others. Greenhouse students showed growth on both these items; students in Group R had significantly more positive ratings about their program than students in Group C had about the regular high school. These significant differences are especially striking because for both items, Group R students rated their previous non-Greenhouse program as considerably less helpful than did the Group C students.

There is considerable evidence, then, that this criterion was met.

Criterion 3: Greenhouse students will show more improvement of their attitude toward self and others than will comparison students, as measured by the Student Attitude Survey.

Instrumentation. The Student Attitude Survey has been described earlier under Objective 7, Criterion 1. One subtest of this instrument measures attitude toward self, and another subtest measures attitude toward others. Each item is to be rated on a five-point agree-disagree scale.

Methodology. The methodology is as described previously under Objective 7, Criterion 1.

Results. Table 48 presents the means for student groups on two subtests. Only eight students from Group R completed the test; these students did show some gains on the Attitude Toward Self Subtest. However, no significant differences were found between Group R and Group C on either subtest, and no significant differences between the two groups were found on the amount of change on either of these two subtests. This criterion, then, was not met.

Interpretation of Data for Objective 11. Greenhouse students felt that they improved greatly in working with and getting along with others. In sharp contrast, comparison students rated their amount learned in these areas as much less. The same "superiority" of Greenhouse students was true for perceptions of improvements in self-understanding. Greenhouse students and Greenhouse resource persons felt that their program provided them with considerable opportunities to improve their skills in working with adults and in accepting other people.

In summary, it appears that the Greenhouse program did help students improve their attitudes toward adults and peers and improve their abilities to get along with and work with others. There is considerable evidence that Greenhouse achieved this objective of student improvement in interpersonal skills.

Objective 12: Self-reliance. The student will demonstrate self-reliance and the ability to function responsibly and independently in daily activities.

Criterion 1: Greenhouse students will show self-reliant and responsible behavior as rated by resource persons.

Standard. If 80% of the ratings are "usually satisfactory" or better, the criterion will be considered achieved.

TABLE 48

STUDENTS' ATTITUDES TOWARD SELF AND OTHERS FROM THE STUDENT ATTITUDE SURVEY

ITEM	STATISTIC	PRETEST			POSTTEST		
		GREENHOUSE		COMP.	GREENHOUSE		COMP.
		1st Yr Self-Sel Group A N = 18	1st Yr Ref'd Group R N = 8	Ref'd Group C N = 22	1st Yr Self-Sel Group A N = 18	1st Yr Ref'd Group R N = 8	Referred Group C N = 22
Attitude toward self	$\overline{X}$	3.95	3.28	3.49	4.13	3.70	3.58
	SD	0.56	0.30	0.56	0.49	0.56	0.62
	t-value	-1.00			0.48		
Attitude toward others	$\overline{X}$	3.98	3.58	3.49	4.08	3.57	3.33
	SD	0.50	0.44	0.49	0.38	0.40	0.54
	t-value	0.44			1.17		

Instrumentation. Five rating scales were included in the end of year Resource Opinion Survey (reproduced in Appendix 3).

Methodology. The analysis methodology was described in Section 3.

Results. Table 49 presents the responses of resource persons to a set of items asking them to rate student behavior at resource sites. The overall student behavior at the site was seen as "always" or "usually" satisfactory by 31 of the 34 resource persons (91%) who responded. They also reported a high degree of student interest in site activities. (84% of ratings were "usually satisfactory" or "always satisfactory.") Most of the resource persons felt students had usually or always shown responsibility, reliability, and good management of time (65%, 59%, and 60% respectively). The criterion, then, was met for two of the items but was not met for the other three items.

Since the development of student self-reliance and responsibility is one of the main emphases of Greenhouse, it is reasonable to expect that Greenhouse students will feel that their program encourages and promotes more such behavior than comparison non-Greenhouse students will feel their program does.

Criterion 2: Greenhouse students will report more opportunities for growth in responsible, self-reliant behavior in their school program than do comparison students, as measured by self-report items.

Instrumentation. Two items on the Experiential Career Development Survey (described previously under Objective 1) asked students to rate the amount of self-reliant behavior that was expected by the Greenhouse program. Also one of the items on the "learning ratings" in the Experiential Career Development Survey asked students to rate the amount they learned about problem solving.

Methodology. The methodology is as described previously under Objective 1, Criterion 4.

Results. Table 50 compares the ratings of Greenhouse and comparison-group students on two items. All Greenhouse students reported that they were expected to plan their own activities and manage their own time. All students responded either "much" or "very much" on this item. In contrast, 13 of 22 comparison students responded "very little" or "little" as to their program expectancy in this area. The mean for Group R on this item was substantially and significantly higher than that of comparison Group C.

TABLE 49

RATINGS BY RESOURCE PERSONS OF STUDENTS' BEHAVIOR AT RESOURCE SITES

ITEM	FREQUENCIES*				Mean of Four Point Scale
	Never Satis-factory	Sometimes Satis-factory	Usually Satis-factory	Always Satis-factory	
Student behavior at the site	2	1	9	22	3.50
Student interest in site activities	1	4	18	10	3.12
Student responsibility for own decisions	4	7	13	7	2.74
Student reliability in keeping commitments	3	11	13	7	2.71
Student management of time	2	11	17	3	2.64
*Number of respondents to each item varied from 31 to 34					

TABLE 50

STUDENTS' RATINGS OF OPPORTUNITIES FOR SELF RELIANCE IN THEIR SCHOOL PROGRAM

Four-point rating scale: 1 = very little 4 = very much	GREENHOUSE			COMPARISON
	Returning Group S N = 9	First Year Self-selected Group A N = 14	First Year Referred Group R N = 11	Referred Group C N = 22
In your school program, this year, how much were you expected to plan your own activities and manage your own time?				
Number high responses (three or four)	9	14	11	9
Number low responses (one or two)	0	0	0	13
Mean of four-point scale	3.89	3.79	3.55	2.32
S.D.	0.33	0.43	0.52	0.78
Comparison of Group R and Group C t-value			4.70**	
In your school program this year, how much were you expected to judge your own behavior and to accept responsibilities for actions you took?				
Number high responses (three or four)	8	14	10	11
Number low responses (one or two)	1	0	1	11
Mean of four-point scale	3.67	3.79	3.55	2.41
S.D.	0.71	0.43	0.69	1.10
Comparison of Group R and Group C t-value			3.13**	

**Significant at .01 level

Table 46 (previously presented) shows student ratings of the amount they felt they had learned in "thinking through and solving problems." Although Group R students rated this item higher than did Group C students there was no significant difference between the means of their responses. Group A students, with a response mean of 3.61 (on a four-point scale), did appear to feel the program offered considerable opportunities for learning problem-solving.

Interpretation of Data for Objective 12. On the basis of self-report items, Greenhouse students felt that they had been able to demonstrate self-reliance and the ability to function responsibly and independently. Resource persons who observed and worked with students at community sites also reported that students demonstrated these qualities.

5. CONCLUSIONS

How successful was the Greenhouse program in meeting its primary goal of service to disaffected youth? The nature of the student populations, in itself, determined in many ways the form of the evaluation that was undertaken and had considerable effect on the interpretation of evaluation results. These students had been "referred" to Greenhouse, and most had negative attitudes toward school and low basic-skills achievment that made difficult both the implementation and evaluation of an EBCE program. The ease of entry and exit was a problem; many of these "referred" students left the program. Documentation of learning activities (required in Greenhouse and a major source of information about students) was difficult for students with low levels of basic skills; thus, students' files were not always complete. The pretesting and posttesting of students with negative attitudes toward school provided a challenge to the Greenhouse staff. It is to the staff's credit that they were able to provide almost complete pretest data on all referred students who enrolled in Greenhouse.

Greenhouse also established the goal of providing an alternative, action-oriented learning program for those who sought it. How well did it accomplish this goal? These "self-selected" students presented problems to the evaluation in that their length of enrollment was quite varied. Most entered after the start of the school year. Of those who entered in the fall, many used the program to complete their high school work and graduated early. The end-of-year testing of these students shows gaps -- some students left the program without being tested.

The difference between the two types of students also affected the evaluation in that the data from the "referred" students and the data from the "self-selected" students could not be combined. It was possible to construct a comparison group for the "referred" students, and the data from these two groups enabled a statistical comparison of one group of Greenhouse students with non-Greenhouse students.

Program objectives were established jointly by Greenhouse and FWL to demonstrate (1) the quality of curriculum provided to students; (2) the effectiveness of EBCE as a learning strategy; and (3) the acceptance of experiential, community-based learning by students, parents of students, and community resource persons. *Exceptionally high* indicators of attainment were projected by Greenhouse in order to challenge staff and students.

Despite the difficulties inherent in the evaluation of the Greenhouse program, data collected by FWL in the measurement of progress toward these objectives showed that Greenhouse had *great success* in accomplishing its objectives. Table 51 shows that for *all* the objectives except one (plus another for which adequate data were not available), at least some (and in most cases almost all) of the preset criteria were achieved. In the one case where none of the criteria were achieved (career-planning involvement), the present standards for both criteria were *almost* achieved. This is really quite a remarkable success for the Greenhouse program. The information assembled shows that during 1977-78 Greenhouse was an energetic, viable program which provided a well-defined learning option to students who were not succeeding in regular school. Many "referred" students, who were very likely to drop out of regular school, remained in Greenhouse. There, in amounts differing among individuals, they took part in the instructional program and accumulated credits toward their graduation. Nearly all (22 of 25) of Greenhouse seniors graduated.

Those students seeking an action-oriented learning alternative excelled in Greenhouse. They earned academic credits at a rate substantially above normal; most of them involved themselves in projects and activities in the community in excess of the high standards that were preset as criteria by the evaluation.

Students, whether "referred" or "self-selected," were enthusiastic about Greenhouse. They liked relating academic study to experience at resource sites. They felt the program strongest in helping them to learn about themselves and about decision-making. They felt it was very helpful in learning about possible careers and in planning for the future. They felt it was helpful in developing their basic skills. To a lesser degree, they felt it was successful for them in learning academic subjects.

Parents were contacted by a mail survey. Disappointingly, fewer than 25% responded. Of this small number, approximately 65% were strong supporters of Greenhouse, 15% were neutral, and 20% felt the program was ineffective with their son or daughter.

TABLE 51

SUMMARY OF PROGRAM OUTCOMES BY OBJECTIVES

PROGRAM OBJECTIVE	All criteria met at preset standards	Some of criteria met at preset standards	None of criteria met at preset standards	Data inadequate to allow judgment	Number of criteria met at preset standard for each objective
Process:					
1. Keeping students in school				X	_* of 2
2. Establishing progress toward graduation		X			2 of 3
3. Providing students with a community-involved curriculum that blends career exploration and academic learning		X			2 of 4
4. Gaining participants' acceptance and support		X			2 of 3
Student Learning:					
1. Reading skills		X			2 of 4
2. Quantitative skills		X			3 of 4
3. Oral communication skills	X				2 of 2
4. Writing skills	X				3 of 3
5. Career-related self-awareness	X				2 of 2
6. Career-planning involvement			X		0** of 2
7. Attitude toward career planning		X			1 of 2
8. Career-related information		X			2 of 3
9. Career decision-making		X			2 of 3
10. Attitude toward learning and education	X				4 of 4
11. Interpersonal skills		X			2 of 3
12. Self-reliance		X			1 of 2

*Insufficient data to determine

**Standards for both criteria were almost met

Community resource persons were also contacted by mail survey. Thirty-seven persons who had participated with students returned the survey instrument. To each question, in excess of 80% of responses were positive, supporting the program and the continuation of Greenhouse.

Given that many students who were not progressing in regular school became active participants in Greenhouse, how well did it serve them? What were the student outcomes? These questions were the foci of the evaluation. Of special interest are the "referred" students, whose educational life seemingly has been prolonged by Greenhouse. Unfortunately, the small size of this group and the diverse nature of the individual members made it difficult to show significant differences between this group and a comparison group on certain measures of knowledge gain, though these differences were statistically significant on some of the measures. In general, those students who were self-selected for the program showed more progress in knowledge and achievement tests than did students who were referred by staff. However, Greenhouse students were able to demonstrate acquisition of career knowledge through an open-ended question on knowledge of one job, even though the question required the student to formulate his/her own response. Referred Greenhouse students appeared to have acquired a greater skill than comparison students in presenting career-related information. Greenhouse students came into the program expecting to get career information and to make plans for the future, and they appeared at the end of the year to have had a broader orientation toward careers and jobs.

Most Greenhouse students entered the program with negative feelings about school or about their previous program, regardless of whether they had sought or had been referred to Greenhouse. In either case, at entry they tended to give low ratings to liking for school in previous years, learning in general, staff, and students at their former program. After the year, Greenhouse students showed a great appreciation for their treatment in the program and for the learning experiences that they had had. Students also had positive perceptions about gains in interpersonal skills, especially skills in working with adults, and about the opportunities the program offered for self-reliance and self-responsibility.

In summary, the evaluation of Greenhouse has shown the interrelationships among the needs of the population, the parameters of the learning program, and the methods for assessment of the program. It appears evident that

Greenhouse has been able to offer students an excellent opportunity to acquire career-related information and an atmosphere in which they could, through positive experiences, reverse negative feelings toward school and work. The program was effective in facilitating students' self-development and in offering opportunities for working and relating with adults. It helped many students, both those who remained in the program as well as those who left, to consider their immediate and their long-range plans for work and education. Though not a primary focus of the Greenhouse program, students in Greenhouse did at least as well (and, in many cases, considerably better) than comparable students in the regular high school in acquisition of basic skills (i.e., writing, reading, mathematics). So, all the success of the Greenhouse program in development of positive attitudes, career knowledge, self-development, etc., were achieved without sacrificing development of basic skills.

BIBLIOGRAPHY

BIBLIOGRAPHY ON THE FAR WEST MODEL OF EXPERIENCE-BASED CAREER EDUCATION

Anderson, S., & Drucker, C. B. *External evaluators' final report on the EBCE programs*. Vol. III: *Experience-Based Career Education in Oakland, California: An anthropological perspective*. Berkeley, CA: Educational Testing Service, 1977.

Baker, R., Spotts, R. & Webb, M. *Improving youth employment through Experience-Based Career Education: a prospectus for linking education and work*. San Francisco: Far West Laboratory for Educational Research and Development, 1977.

Banker, N. *Experience-Based Career Education, staff development handbook*. San Francisco: Far West Laboratory for Educational Research and Development, 1976.

Christensen, P. R., & Johnson, J. N. *The learning coordinator: A study of the role*. San Francisco: Far West Laboratory for Educational Research and Development, 1977.

Christensen, P., Spotts, R., & Evenson, J. *Experience-Based Career Education, final evaluation report FY 1975*. San Francisco: Far West Laboratory for Educational Research and Development, 1975.

Christensen, P., Spotts, R., Evenson, J., & Watkins, R. *Evaluation and research on Experience-Based Career Education at Far West School*. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, D.C., April 1975.

Corder, R. *External evaluators' final report on the EBCE programs*. Vol. I: *Summary evaluation of four Experience-Based Career Education schools*. Berkeley, CA: Educational Testing Service, 1977.

Corder, R., & Watkins, R. *External evaluators' final report on the EBCE programs*. Vol. VII: *Search for, and development of, instruments measuring student outcomes of Experience-Based Career Education programs*. Berkeley, CA: Educational Testing Service, 1977.

Creech, F. R. *External evaluators' final report on the EBCE programs*. Vol. VIII: *Behavioral observation at Far West School: A description of Experience-Based Career Education*. Berkeley, CA: Educational Testing Service, 1977.

Evenson, J., & Banker, N. *Utility of community-based learning resources*. Paper presented at the Annual Meeting of the American Educational Research Association, New York City, April 1977.

Evenson, J., & Spotts, R. *Experience-Based Career Education, final evaluation report FY 1976*. San Francisco: Far West Laboratory, 1976.

Far West Laboratory for Educational Research and Development, Experience-Based Career Education Project. *Employer-Based Career Education evaluation report FY 1973*. San Francisco: FWL, 1973. (a)

Far West Laboratory for Educational Research and Development, Experience-Based Career Education Project. Prospectus: EBCE replication. San Francisco: FWL, 1973. (b)

Far West Laboratory for Educational Research and Development, Experience-Based Career Education Project. Prospectus: Employer-Based Career Education program operation plan fiscal year 1974. San Francisco: FWL, 1973. (c)

Far West Laboratory for Educational Research and Development, Experience-Based Career Education Project. Implementation prospectus: Experience-Based Career Education fiscal years 1976-78. San Francisco: FWL, 1975.

Far West Laboratory for Educational Research and Development, Experience-Based Career Education Project. Operational handbook. Vol. I: Management. San Francisco: FWL, 1976. (a)

Far West Laboratory for Educational Research and Development, Experience-Based Career Education Project. Operational handbook. Vol. II: Resources. San Francisco: FWL, 1976. (b)

Far West Laboratory for Educational Research and Development, Experience-Based Career Education Project. Operational handbook. Vol. III: Guidance and instruction. San Francisco: FWL, 1976. (c)

Far West Laboratory for Educational Research and Development, Experience-Based Career Education Project. Operational handbook. Vol. IV: Project planning packages. San Francisco: FWL, 1976. (d)

Hood, P. D., & Banathy, B. H. An employer-based career educational model, a description and an operational plan. San Francisco: Far West Laboratory for Educational Research and Development, 1972.

Jenks, C. L. A study of the feasibility of field adoption and implementation. San Francisco: Experience-Based Career Education Project, Far West Laboratory for Educational Research and Development, 1975.

Jenks, C. L. Preliminary information needs of educators for adoption decisions. San Francisco: Experience-Based Career Education Project, Far West Laboratory for Educational Research and Development, 1976. (a)

Jenks, C. L. Theoretical basis of experience-based career education. San Francisco: Experience-Based Career Education Project, Far West Laboratory for Educational Research and Development, 1976. (b)

Jenks, C. L. Guide to adoption and implementation decisions. San Francisco: Experience-Based Career Education Project, Far West Laboratory for Educational Research and Development, 1977.

Johnson, J. N. The feasibility of employer-based career education: A summary of studies undertaken by the Far West Laboratory in cooperation with the Northwest Regional Laboratory. San Francisco: Far West Laboratory for Educational Research and Development, 1973.

Johnson, J. N. EBCE: The Far West model, a program overview. (2nd ed.) San Francisco: Far West Laboratory for Educational Research and Development, 1975.

National Institute of Education. A comparison of four experience-based career education programs. Washington, DC: NIE, 1976

Rusteika, G. A cost comparison study on EBCE replication. San Francisco: Far West Laboratory for Educational Research and Development, 1974.

Spotts, R. National directory of Experience-Based Career Education programs. Washington, D.C.: National Institute of Education, 1978.

Spotts, R., Watkins, R., Evenson, J., & Bavry, J. Experience-Based Career Education, final evaluation report FY 1974. Vol. I. San Francisco: Far West Laboratory for Educational Research and Development, 1974. (a)

Spotts, R., Watkins, R., Evenson, J., & Bavry, J. Experience-Based Career Education, final evaluation report FY 1974. Vol. II. San Francisco: Far West Laboratory for Educational Research and Development, 1974. (b)

Spotts, R. & Evenson, J. Experience-Based Career Education, evaluation of outcomes at three pilot programs, 1976-77. San Francisco: Far West Laboratory for Educational Research and Development, 1977.

Trask, A. E. External evaluators' final report on EBCE programs. Vol. IX: Experience-Based Career Education: An interorganizational analysis. Berkeley, CA: Educational Testing Service, 1977.

Watkins, R., & Corder, R. External evaluators' final report on the EBCE programs. Vol. VI: Student outcomes and participant opinion in Experience-Based Career Education schools. Berkeley, CA: Educational Testing Service, 1977.

Watkins, R. W., & Jenks, C. L. Values and information: An approach to evaluation planning. San Francisco: Experience-Based Career Education Project, Far West Laboratory for Educational Research and Development, 1976.

157

APPENDIX 1

Description of the FWL-EBCE Model

158

Program Goals

During the early feasibility studies, five program goals were defined for EBCE:

1. It should represent a viable, comprehensive alternative to other secondary programs;
2. It should make education more relevant to life in general and to adult employment in particular;
3. It should integrate the general, academic, and occupational preparation of the student;
4. It should broaden the base of community participation in education, especially to include the employing sector; and
5. It should broaden the base of student participation in determining the direction and nature of the educational process.*

These goals guided the development of the FWL-EBCE model and served as the rationale for its learning processes.

Program Structure

Briefly, the FWL-EBCE model was designed to provide students with a comprehensive alternative to regular high school, focusing on experience-based learning in the community through projects that allow them to earn credits toward graduation while acquiring career awareness necessary to pursue their future goals. The model emphasizes one-to-one relationships with individual adults -- resource persons -- in work settings where they share occupational experience, personal knowledge and skills, and interests. The essentials of a secondary education are integrated with career preparation through a series of planned, personalized learning experiences in a wide variety of life and work settings.

---

*Paul D. Hood and Bela H. Banathy. An Employer-Based Career Educational Model: A Description and Operating Plan (San Francisco: Far West Laboratory for Educational Research and Development, January 31, 1972), p. 85.

The individualized student project planned by the student and approved by staff is the central means of organizing student learning and awarding credit for student work. Students learn by planning, questioning, doing, and evaluating their own experiences and performance. Students learn how to learn through an inquiry process -- identifying significant questions and appropriate resources, working with people in the field supplemented by related reading, analyzing what they do and learn, and synthesizing the results in written or other products -- and through individual and group discussions with staff. Students may also pool their intersts and skills in small group projects; however, credit is awarded only for the individual's contribution.

Projects blend career exploration with academic learning, enabling students to earn course credits in starndard areas through community-based research, experience, and related reading and discussion. Depending on their individual needs and interests, students spend from 20 to 80 percent of their time in the community in one-to-one and small-group interactions with volunteer resource persons in a wide range of learning sites in the community.

In general, the FWL-EBCE model replaces classroom instruction in academic areas with a combination of individualized research projects and weekly seminars, during which all students working on projects in a given field broaden their knowledge of the subject by sharing their research with one another and discussing concepts, issues, methods, and recent developments in the field.

EBCE students may also enroll in regular high school or community college courses or pursue academic knowledge and skills through independent study, tutorials, or workshops offered through the EBCE program. To the extend possible, these supplementary activities are related to and build on students' field experiences.

FWL-EBCE focuses on helping students acquire skills and knowledge needed for disciplined inquiry, future planning, and community involvement: Knowledge of self and of career options; communications and interpersonal skills; inquiry, problem-solving and decision-making skills; and increased understanding of significant concepts, issues, problems and methods associated with major fields of study and work. The experience-based project format undergirded by seminars allows students and staff to capitalize on the natural integration and application of these skills and knowledge in economic and social settings.

Guides (called "Project Planning Packages") provide students and staff with ideas and guidelines for developing projects that blend career exploration with disciplined inquiry in standard subject areas, and that (singly or in aggregate) are acceptable for academic credit equivalent to a semester's course work.

Using the project format, students specify questions they want to answer, goals they intend to achieve, resources and activities needed to carry them out, and how they intend to demonstrate the achievement of their goals. Student progress, needs, and interests are continually reassessed and the student is involved in replanning as necessary.

When constructing their project plans, students indicate the type and amount of credit planned, subject to the approval of their learning coordinators. Each completed project is evaluated by learning coordinators (LCs), resource persons, skills specialists, and any other designated certifiers. When a project is successfully completed, credit is assigned in the subject areas designated and entered on the official transcript.

Program Use of Community Resources

The FWL-EBCE model seeks both individual volunteer resource persons and commitments from resource organizations. If an individual volunteers, this contact is used as a base for eliciting organizational commitment. If an organization agrees to participate, the program seeks individual volunteers within it. In either case, the goal is to recruit individuals eager to work with students on a one-to-one or small-group basis.

Whether an arc welder or lawyer, printer or biologist, the resource person's primary role is to help students become adults, learn how to think for themselves, make responsible decisions, relate maturely to others, and plan and carry out their own learning projects.

The relationship between resource person and student is voluntary on both sides and is defined by a set of mututally understood expectations and consequences. It scope, objectives, and duration are negotiable -- depending on the resource person's availability and the student's educational needs and interests.

Program staff members work individually with newly recruited resource persons to help them understand the underlying concepts of EBCE, its goals, and how it operates, as well as to determine with them how they can best help students. The resource person's participation in defining their own roles is a key element in preparing them to work with students.

Through informal but probing interviews, program staff work with resources to identify a range of learning activities the resource person can offer students to expand their career and self-knowledge, apply their basic skills in real-life situations, pursue research topics or issues of interests, and acquire conceptual and technical knowledge in academic and career areas. Learning activities are tailored to the resource person's interests, expertise, work, and schedule. The business administrator with a degre in political science may be willing to work with students either on business or government projects. The letter carrier who writes poetry may only be interested in sharing avocational interests. The carpenter with an avid interest in photography may be able to help students acquire skills in either area. The FWL-EBCE model capitalizes on resources' experience and expertise whether directly related to their current work situation or not.

Students select the resources they will visit and use in their projects based on their current needs and interests. On a single project, students may work with several resources at different levels of depth and duration.

The orientation level or short-term arrangement allows the student to become acquainted with resource persons and their organization and to discover what can be learned there -- or simply to supplement research on a project where the student is more intensively imvolved with other resource people.

The exploration level allows the student to arrange several more visits with a resource to survey a career of area of study.

At the investigation level, which may last a full school term, students can focus on in-depth research or on mastering selected career or academic skills. At both the exploration and investigation levels, students must work with their resources and learning coordinator to develop a project plan specifying what they will do and learn, performance and products expected, deadlines, evaluators, and evaluation criteria.

Students are encouraged to use more than one resource on a project whenever possible. They may work with as few as three or as many as ten or more resources during a school term, depending on the number and type of projects planned.

Program Activities for Career Development

Through the experiential nature of the FWL-EBCE learning process, career planning and decision-making are a recurring focus of student work. During their orientation to the program, students are introduced to a process of career planning and decision-making that starts with learning about their own interests, strengths, weaknesses, likes, dislikes, and values, and recognizing that these may change with further education and experience.

Students are then helped to plan activities and gain experiences in EBCE to test their knowledge of themselves as well as to learn more about careers. They learn to analyze careers not just in terms of duties, requirements, and rewards, but in terms of the effect on one's lifestyle and congruence with one's values. In individual and group sessions, students are led to evaluate their experiences with resources in terms of what they have learned about themselves, to identify what they like and dislike about the career they have encountered, to continually reconsider their interests and personal goals, and to seek additional information and experinece to aid their decision-making.

While first-hand exploration and testing of expressed interests and goals are emphasized, students are encouraged to use other sources of information (e.g., interest and aptitude inventories and published occupational information) to identify latent interests or skills and select career areas to explore.

APPENDIX 2

Sample Learning Activity
Packet Developed by
Greenhouse Staff

Three learning coordinators worked from June 27 through September 2, 1977 to write 45 prescriptive, competency-based LAPs as follows:

a. Life Skills LAPs which address themselves to interpersonal skills, problem solving skills, decision-making skills, and inquiry skills.

b. Career Awareness and Development LAPs which address themselves to self development, career decision making planning, career awareness, and career entrance skills.

c. Package Area LAPs in 8 subject cluster areas; Business, Communications, Consumer Education, Education, Health, Practical Arts, Science (Environmental Studies), Social Studies (Community Services).

The LAPs were then written in such a way that they can be applied to existing field sties' resource guides. The LAPs were written with a specific prearranged format that includes;

a. statement of goals

b. enabling activities to develop competence

c. suggested resource or field sites to be used for activities

d. indicators and statements of criteria for proof of competence

The staff worked for one day with a consultant and shared ideas about a prototype LAP in each area. The staff then identified the existing lack of competency from "pilot year" experience in lilfe skills, career development, and package areas.

LAPs may be prescribed by learning coordinators or the skills specialist, or they may be freely selected by students. Once successfully completed, students will be able to design and complete their own in depth explorations and investigations at field sites. Included in each LAP are the evaluative criteria to measure competence in life skills, career development skills, or subject package goals. The LAPs will continuously be reviewed and evaluated by the staff and experts at related field sites.

COMPETENCY BASED LEARNING
ACTIVITY PACKETS

Prepared for Title IV B (New York State Competency Based Education Project)

The University of the State of New York
THE STATE EDUCATION DEPARTMENT
Optional Educational Programs
Albany, New York 12234

Prepared by: Charles Alessi June 27, 1977
Kathleen Cicerani to
Richard Zodda September 30, 1977

GREENHOUSE Experience-Based Career Education

An Alternative High School
South Side Senior High School
Rockville Centre, New York
ROCKVILLE CENTRE UNION FREE
SCHOOL DISTRICT

GREENHOUSE
EBCE

LAP #2
Area: Social Science

Title: Community Service Organizations
How They Are Organized, Regulated
and Funded

GOALS:

1. To understand the nature of organization and the need for people to work together.

2. To determine the extent of authority given employees at a selected agency.

3. To understand the extent to which an agency is regulated by federal, state, and local government.

4. To identify the variety of funding sources available to a community service organization.

RESOURCE SITES:

American Red Cross Youth Service Program
C.C.C.
District Attorney's Office
E.O.C.
Mental Health Association
RVC Recreation Center
Women's Liberation Center
Office of Consumer Affairs

INTRODUCTION:

"In union there is strength." "United we stand, divided we fall." These are sayings that explain why organization is so important. Any kind of organization, regardless of size or type, makes it possible for people to work together more effectively. With the exception of individuals such as artists and craftsmen, most people can accomplish more when working with others in an organization than they can accomplish working alone.

To organize means to arrange into a pattern or system. An organization is a pattern or system that relates the individual activities of each member of a group of people to a common goal.

Like most things in this world, organizations come in many sizes and types. Size simply means the number of people concerned. Type, however, involves the way authority and responsibility are assigned.

Those two words, authority and responsibility, often bother people just beginning in the world of work. They sound too rigid, too cold. Yet, think about the way Greenhouse is organized and how it helps the school to run smoothly. How authority and responsibility are assigned within an organization forms a definite pattern.

ACTIVITY 1: During your next visit to your resource site, determine:

a. The size of the organization;
b. The type of organization;
    1. who is the chief authority?
    2. who comes next?
    3. who comes after that, etc.?

Certification:

ACTIVITY 2: Try to determine the extend of the authority given to employees at each level. List some things that they do not have the authority to do. Why not? Does anyone is the organization have the authority? Why is it given only to a few persons?

Certification:

ACTIVITY 3: How would you evaluate the way this site is organized? Does it operate smoothly? Do you have any suggestions for improvement?

Certification:

LAP #2
Area: Community Service Organizations

Title: How They Are Organized, Regulated and Funded

The relationship of government to community service is a topic that usually arouses rather strong and often quite different opinions. It is impossible, however, to discuss community organizations without discussing government. Government usually influences what they can and cannot do at every turn, through regulation and funding.

When government is mentioned, many people think only of the federal government, probably because its role is the largest and its influence is usually the greatest. Yet the federal government is only one of three main levels of government: federal, state, and local.

ACTIVITY 1: Speak with a knowledgeable person at your resource site to determine the extent of government regulation. Determine whether it is at the federal, state or local level. Are there any specific agencies involved? Was there a specific Act of Congress which created the organization?

Certification: ____________________

ACTIVITY 2: Determine how closely the organization works with federal, state or local government. Does the government body respond to changing needs? Are there any problems your site is having in dealing with the government?

Certification: ____________________

LAP #2
Area: Community Service organization

Title: How They Are Organized, Regulated and Funded

ACTIVITY 3: Every community service organization needs money to survive. Often, entire programs disappear when the funding runs out. Others manage to survive by seeking money from lots of different sources. Some go out and raise their own money.

Determine the sources of funding for your resource organization. Display what you have learned on a chart or pie graph.

Certification: ______________________________

ACTIVITY 4: Most community service organizations could do a lot more if they only had the money. Money pays for salaries, supplies, and all the things an organization needs to serve its purpose.

How adequately is your resource organization funded? What are some of the problems when you have to rely on government funding for your survival? What steps can be taken to keep money coming in?

Certification: ______________________________

ACTIVITY 5: How does the community service organization you are resourcing obtain its money? Does it simply come to them year after year? Do they have to apply for grants? How do they get an increase in their budget? Is the job frustrating?

LAP #2
Area: Community Service Organization

Title: How They Are Organized, Regulated and Funded

Certification:

ACTIVITY 6: Do you think this organization could do a better job if it had more money? What could be done that is not being done now? What new programs would your resource person like to see initiated? What new services would you add?

Certification:

APPENDIX 3

INSTRUMENTS AND FORMS

SECTION 1: Project-developed Instruments

SECTION 2: Description of Other Instruments

SECTION 3: EBCE School Forms Used in Evaluation

SECTION 1: Project-developed Instruments

INSTRUMENT DESCRIPTION

Name of Instrument: Student Background Summary

Developer: Far West Laboratory EBCE Program.

Source: Students -- EBCE and other high school students.

Purpose: To collect demographic information, plans for after high school, baseline attitudes toward school and toward previous school program, and reasons for entering the program.

Instrument Type: Questionnaire, multiple-choice and rating scales.

Administration: On entry to the program. Untimed -- takes approximately 15 minutes.

History: Items either originated with the FWL-EBCE program or were derived from those appearing in a similar instrument developed by the four EBCE programs in 1973. The current instrument has been in use since the fall of 1975. End-of-year information related to several of the questions is collected on another instrument -- the SPPS.

Scoring: All items are objective in format and can be hand-scored, or punched and machine-scored. The only coding required is to convert the age of the student to months of age in September of the current school year.

EXPERIENCE-BASED CAREER EDUCATION	STUDENT BACKGROUND SUMMARY

NAME

SCHOOL

DATE

DATE OF BIRTH month___________ day_____ year ______

To the student:

This questionnaire, the Student Background Summary, asks for information about what you are like, your future plans, and how you feel about school. This will help your school staff to improve your program and make it work better. It also will help us at Far West Laboratory to put similar programs into other high schools. Questionnaires will be treated confidentially; they will be kept at Far West Laboratory in San Francisco and no information that identifies any individual student will be released to the school district.

Please be sure that you have filled out the items at the top of the page and then turn to the next page and start on the questionnaire. You will see that all of the questions on the following pages ask you to circle a number to show your answer. Usually there will be only one number to circle for each question but sometimes you will be asked to circle one number in each column or one number in each line.

Thank you for your time.

(SBS-I 9/3/75)

1. Current school grade level:

	(Circle one)
9th grade	1
10th grade	2
11th grade	3
12th grade	4

2. Sex:

	(Circle one)
Male	1
Female	2

3. How do you describe yourself?

	(Circle one)
American Indian	1
Black or Afro-American	2
Filipino	3
Mexican-American or Chicano	4
Puerto Rican	5
Other Latin-American origin	6
Oriental or Asian-American	7
White or Caucasian	8
Other	9

4. What is the highest level of formal education completed by your father? If you are not sure please give your best guess.

(Circle one)

Elementary school.............................. 1
Some high school training...................... 2
High school diploma............................ 3
Some college training.......................... 4
College degree................................. 5
Some graduate school training.................. 6
Graduate school degree......................... 7

5. What is the highest level of formal education completed by your mother? If you are not sure please give your best guess.

(Circle one)

Elementary school.............................. 1
Some high school training...................... 2
High school diploma............................ 3
Some college training.......................... 4
College degree................................. 5
Some graduate school training.................. 6
Graduate school degree......................... 7

6. Father's and Mother's Work

Under FATHER, circle the one number that best describes the work done by your father (or male guardian). Under MOTHER, circle the one number that best describes the work done by your mother (or female guardian). The exact job may not be listed but circle the one that comes closest. If either of your parents is out of work, disabled, retired, or deceased, mark the kind of work that he or she used to do.

(Circle one number in each column)

	Father	Mother
CLERICAL *such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent*	01	01
CRAFTSMAN *such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter*	02	02
FARMER, FARM MANAGER	03	03
HOMEMAKER OR HOUSEWIFE	04	04
LABORER *such as construction worker, car washer, sanitary worker, farm laborer*	05	05
MANAGER, ADMINISTRATOR *such as sales manager, office manager, school administrator, buyer, restaurant manager, government official*	06	06
MILITARY *such as career officer, enlisted man or woman in the armed forces*	07	07
OPERATIVE *such as meat cutter, assembler, machine operator, welder, taxicab, bus, or truck driver, gas station attendant*	08	08
PROFESSIONAL *such as accountant, artist, clergyman, dentist, physician, registered nurse, engineer, lawyer, librarian, teacher, writer, scientist, social worker, actor, actress*	09	09
PROPRIETOR OR OWNER *such as owner of a small business, contractor, restaurant owner*	10	10
PROTECTIVE SERVICE *such as detective, policeman or guard, sheriff, fireman*	11	11
SALES *such as salesman, sales clerk, advertising or insurance agent, real estate broker*	12	12
SERVICE *such as barber, beautician, practical nurse, private household worker, janitor, waiter*	13	13
TECHNICAL *such as draftsman, medical or dental technician, computer programmer*	14	14

7. What are your plans for one year and five years after high school?

(Circle one number in each column)

	One year after high school	Five years after high school
Going to school, but not working	1	1
Mostly going to school but working part time	2	2
Mostly working but going to school part time	3	3
Working, not going to school	4	4
Other plans instead of going to school or working (please specify)	5	5

____

____

8. In what kind of educational program do you plan to be enrolled one year after high school?

(Circle one)

None	1
Apprenticeship or on-the-job training	2
Vocational, technical, trade or business school	3
Study of technical or vocational courses at a junior college or community college	4
Academic courses at a junior or community college	5
Four year college or university	6
Other educational program (please specify)	7

____

____

9. What are your long range plans? In five years in which of the following areas are you most likely to be working or preparing to work? Please give your best guess.

(Circle one)

CLERICAL *such as bank teller, bookkeeper, secretary, typist, mail carrier, ticket agent*	01
CRAFTSMAN *such as baker, automobile mechanic, machinist, painter, plumber, telephone installer, carpenter*	02
FARMER, FARM MANAGER	03
HOMEMAKER OR HOUSEWIFE	04
LABORER *such as construction worker, car washer, sanitary worker, farm laborer*	05
MANAGER, ADMINISTRATOR *such as sales manager, office manager, school administrator, buyer, restaurant manager, government official*	06
MILITARY *such as career officer, enlisted man or woman in the armed forces*	07
OPERATIVE *such as meat cutter, assembler, machine operator, welder, taxicab, bus, or truck driver, gas station attendant*	08
PROFESSIONAL *such as accountant, artist, clergyman, dentist, physician, registered nurse, engineer, lawyer, librarian, teacher, writer, scientist, social worker, actor, actress*	09
PROPRIETOR OR OWNER *such as owner of a small business, contractor, restaurant owner*	10
PROTECTIVE SERVICE *such as detective, policeman or guard, sheriff, fireman*	11
SALES *such as salesman, sales clerk, advertising or insurance agent, real estate broker*	12
SERVICE *such as barber, beautician, practical nurse, private household worker, janitor, waiter*	13
TECHNICAL *such as draftsman, medical or dental technician, computer programmer*	14

10. What is your past job history?

	(Circle one)
No paid work experience	1
Some paid work experience, but less than 3 months full time or six months part time	2
At least 3 months full time or 6 months part time	3
At least 6 months full time or 12 months part time	4
At least 1 year full time or 2 years part time	5

11. The statements below describe various ways in which your school program last year may or may not have helped you. Show how you agree or disagree with the following statements:

(Circle one number on each line)

	Strongly Disagree	Disagree	Agree	Strongly Agree
The school helped to prepare me for work	1	2	3	4
The school helped to prepare me for college	1	2	3	4
The school helped me to decide what I want to do after high school	1	2	3	4
The school helped me to better understand myself	1	2	3	4
The school helped me to get along better with others	1	2	3	4

12. How did you like school last year?

(Circle one)

I disliked almost everything about it.................. 1
I disliked it more than I liked it...................... 2
I liked and disliked it about equally................... 3
I liked it more than I disliked it...................... 4
I liked almost everything about it...................... 5

13. How did you like school in the years before last year?

(Circle one)

I disliked almost everything about it.................. 1
I disliked it more than I liked it...................... 2
I liked and disliked it about equally................... 3
I liked it more than I disliked it...................... 4
I liked almost everything about it...................... 5

14. Keeping on top of my school work is

(Circle one)

Never important to me.................................. 1
Not usually important to me............................ 2
Sometimes important and sometimes not.................. 3
Usually important to me................................ 4
Always important to me................................. 5

15. Getting good grades is

(Circle one)

Never important to me.................................. 1
Not usually important to me............................ 2
Sometimes important and sometimes not.................. 3
Usually important to me................................ 4
Always important to me................................. 5

16. Why are you attending the EBCE program this year? Below is a list of some possible reasons for attending; please indicate whether each was an important reason for your decision to attend EBCE, was somewhat important or was not important.

(Circle one number on each line)

	Not important	Somewhat important	Important
To develop plans for after high school	1	2	3
To learn things that I want to learn	1	2	3
To make new friends	1	2	3
To find out more about my own values, interests, needs and goals	1	2	3
To plan my own learning program	1	2	3
To get into a program different from regular school	1	2	3
To work with adults in the community	1	2	3
To have more individual attention	1	2	3
To find out more about careers	1	2	3
To have learning activities outside of the classroom	1	2	3
To get job training	1	2	3
To have more responsibility and independence	1	2	3
To get away from problems at my previous school	1	2	3
To improve my skills in meeting and dealing with adults	1	2	3
To get help in finding a job	1	2	3
Other reason (please specify)	1	2	3

____

____

INSTRUMENT DESCRIPTION

Name of Instrument: Experiential Career-Development Survey

Developer: - Far West Laboratory EBCE Program

Source: Students -- EBCE and other high school students.

Purpose: To collect information from students on their future plans, job knowledge, attitude toward school and attitude toward their current school program.

Instrument Type: Questionnaire; multiple-choice, rating scales, and open-ended questions.

Administration: End of year only. Untimed -- takes approximately 20 minutes.

History: The current version incorporates items from the Student Plans and Perceptions Survey, used in previous years, and adds new items on career planning and job knowledge. Questions 1, 2, 3, 8 and 13 are the same, or very similar, to items on the Student Background Summary and can be used for Pre/Post comparison.

Scoring: Most of the items are objective in format and can be hand-scored or key-punched and machine-scored. Items 5 and 6 require coding. The coding categories are described in the report text.

EXPERIENTIAL CAREER-DEVELOPMENT SURVEY

EXPERIENCE-BASED CAREER EDUCATION

FAR WEST LABORATORY
FOR EDUCATIONAL RESEARCH AND DEVELOPMENT
1855 FOLSOM STREET • SAN FRANCISCO, CALIFORNIA 94103

Name: ____________________

Date: ____________________

School: ____________________

This questionnaire asks for your opinions about going to school and about your current school program. It also asks about your future plans. There are no right or wrong answers -- your own thinking about your school experiences and career plans will help us to improve future career education programs. Responses to this questionnaire will be treated as strictly confidential. Thank you for your time.

1. What are your plans for one year after high school?

(Circle one number)

Going to school, but not working	1
Mostly going to school, but working part time	2
Mostly working, but going to school part time	3
Working, not going to school	4
Other activities instead of going to school or working (please specify)	5

____

____

2. What are your plans for five years after high school?

(Circle one number)

Going to school, but not working........................1

Mostly going to school, but working part time..2

Mostly working, but going to school part time..3

Working, not going to school............................4

Other plans instead of going to school or working (please specify)............................5

____

____

3. In what kind of educational program do you plan to be enrolled one year after high school?

(Circle one number)

None...1

Apprenticeship or on-the-job training...................2

Vocational, technical, trade or business school..........3

Technical or vocational courses at a junior college or community college.....................4

Academic courses at a junior or community college..5

Four year college or university.........................6

Other educational program (please specify)...............7

____

____

4. What best describes your current planning for the future?

(Circle one number)

I have done hardly any planning..................................1

I'm just beginning to do some serious planning.................2

I have some plans but they're not fully thought out............3

I have some plans and I'm following them up.....................4

5. What are your current career plans?

6. Name a job or career that you know something about ________________.

State five things that a person does while working at this job or career:

1.

2.

3.

4.

5.

Give the steps that one would need to follow in order to start working at this career or job.

1.

2.

3.

4.

5.

How did you get the information that you now have about this career or job?

Name three things you could do to get more information about this career or job.

1.

2.

3.

7. How much do you feel that you learned in your school program this year?

(Circle one number on each line)

How much did you learn in the area of:	Nothing	A Little	Some	A Lot
a. Learning about careers and jobs	1	2	3	4
b. Planning for a career or careers	1	2	3	4
c. Learning job-seeking skills	1	2	3	4
d. Learning how to do a particular job	1	2	3	4
e. Improving reading skills	1	2	3	4
f. Improving writing skills	1	2	3	4
g. Improving math skills	1	2	3	4
h. Improving listening and speaking skills	1	2	3	4
i. Thinking through and solving problems	1	2	3	4
j. Improving skills in working with other students	1	2	3	4
k. Improving skills in working with adults	1	2	3	4
l. Accepting many different ideas and backgrounds of people	1	2	3	4

(Circle one number)

8. How did you like school this year?

I disliked almost everything about it	1
I disliked it more than I liked it	2
I liked and disliked it about equally	3
I liked it more than I disliked it	4
I liked almost everything about it	5

(Circle one number on each line)

	Very Little	Little	Much	Very Much
9. Did your school program this year give you much opportunity to find out more about your career-related interests, abilities, and values?	1	2	3	4
10. Did your school program this year help you to learn about matching what you know about yourself with future career possibilities?	1	2	3	4
11. In your school program, this year, how much were you expected to plan your own activities and manage your own time?	1	2	3	4
12. In your school program this year, how much were you expected to judge your own behavior and to accept responsibilities for actions you took?	1	2	3	4

13. The statements below describe various ways in which your school program this year may or may not have helped you. Show how you agree or disagree with the following statements:

(Circle one number on each line)

	Strongly Disagree	Disagree	Agree	Strongly Agree
The school helped to prepare me for work	1	2	3	4
The school helped to prepare me for college	1	2	3	4
The school helped me to decide what I want to do after high school	1	2	3	4
The school helped me to better understand myself	1	2	3	4
The school helped me to get along better with others	1	2	3	4

INSTRUMENT DESCRIPTION

Name of Instrument: School Opinion Scales

Developer: Far west Laboratory EBCE Program

Source: Students -- EBCE and other high school students.

Purpose: To collect information on student attitudes toward learning and toward their school program. The instrument contains four subscales measuring attitude toward student learning autonomy, attitude toward peers, attitude toward staff, and general attitude toward school.

Instrument Type: Rating scales. Thirty statements are rated on a five-point scale from "strongly disagree" to "strongly agree."

Administration: On entry to the program and at end of year. Untimed -- takes approximately 15 minutes to complete. The instructions call for rating the program just attended; i.e., on entry to the program rate the program previously attended and at the end of the year rate the EBCE program.

History: The School Opinion Scales (SOS) were developed to provide an instrument with items suitable for use in the EBCE program. The original source of items was the School Sentiment Index (SSI).* A few items were adapted from other sources. The instrument was specifically designed to be suitable for alternative programs such as EBCE that do not have classroom instruction or use teachers as primary instructional agents.

The School Sentiment Index is made up of seven subscales that form a pool of 82 items. In the original selection process, two members of the evaluation staff chose items from SSI that appeared to have possibilities for measurement of attitudes of EBCE students. These items were adapted where necessary to the unique EBCE setting; "teacher" was changed to "staff" and "classes" to "school," for example. The first form of the SOS consisted of 42 items adapted from the School Sentiment Index and five other items.

The initial group of 47 items was pilot-tested on 97 EBCE students. Some unsatisfactory items were eliminated following item analysis. The remaining 37 items were factor-analyzed. Factor analysis led to the elimination of some items and the stabilization of 30 items in four factors.

---

*School Sentiment Index (Attitude Toward School Grades K-12, Instructional Objectives Exchange, 1972).

Table 1 shows the relation of the items in the School Opinion Scales to the original scales of the School Sentiment Index. Suitable items were found in each subscale of the SSI with the exception of the "learning" subscale. During the development of the instrument, it was found that two of the SOS subscales differentiated early and appeared relatively independent of the other items. One was "peers" where five of the original eight items in the School Sentiment Index were transferred to the "peers" subscale of the SOS. The "general" scale, measuring a non-specific and long-term attitude toward school, also differentiated early -- three items were transferred from a similar scale on the School Sentiment Index.

The first and strongest factor in the School Opinion Scales consists of ten items and appears to be related to the type of learning which is characteristic in EBCE. The factor has been variously labelled "student autonomy" or "student decision-making." It can be seen from Table 1 that most of the items in this scale originally came from the teacher subscales of the SSI, especially those scales having to do with mode of instruction and authority and control. The scale appears to have been switched from teacher-controlled learning to student-centered learning or learning autonomy.

The final subscale of the four appears to measure the staff-student relationship on an affective rather than on a cognitive basis. Appropriately, these items are basically drawn from the two SSI scales on teachers' interpersonal relationship with students and "social structure and climate." This was the least independent of the four subscales; four of the items on this scale also had loadings above .30 on the learning autonomy scale described previously.

Exhibit A groups the items by factor, shows the loading on each factor and, in parentheses, the secondary loading over .30. Exhibit A also shows the items in which the polarity is to be reversed for scoring.

Scoring: All items are scored in a "school-positive" direction -- the polarity is reversed on twelve "negative" items. The SOS produces five scores for each respondent -- one for each subscale and a total score -- each representing the degree of agreement with the school-positive pole on statements related to the four identified factors: attitudes toward learning autonomy, school, peers, and staff. Each subscore consists of the mean rating for items in that subscale. The total score consists of the mean rating over all items. Missing values are arbitrarily assigned a value of "3" (undecided).

TABLE 1: COMPOSITION OF SCHOOL OPINION SCALES

Original SSI Subscales	Original SSI N	Number Chosen for SOS	Final Form of SOS	Distribution Subscales of SOS			
				Learning Autonomy	General	Peers	Staff
Teacher:							
Mode of instruction	15	7	3	3			
Authority and control	10	6	3	3			
Interpersonal with students	12	6	4	1			3
Learning	11	0	0				
Social Structure, climate	15	9	5	1	1	1	2
Peer	8	6	5			5	
General	11	8	5	1	3		1
TOTAL	82	42	25				
Other Sources		5	5	1	2		2
		47	30	10	6	6	8

EXHIBIT A

SCHOOL OPINION SCALE FACTORS

FACTOR A: STUDENT LEARNING AUTONOMY

Item No	Reverse Polarity	Item	Primary Loading	Secondary Loading
17		At this school I have the opportunity to choose assignments that are interesting to me	.65	
1		The staff at this school likes working with young people	.63	(C.32)
23	R	At this school students do not have much choice in what they study	-.62	
5		School is important to me because I find many of the things I learn are useful outside of school	.59	(B-.32)
27		The staff at this school will accept suggestions from students	.57	
10	R	At this school I am not allowed to be as creative as I want to be	-.48	
7		At school I am encouraged to think for myself	.45	
14		Some of the ideas I've gotten in school have been so interesting I have followed up on my own	.42	
16	R	This school is run like a prison	-.41	
20		The staff at this school likes what it is doing	.39	(D.31)

FACTOR B: SCHOOL-RELATED ATTITUDES

3	R	School has always been boring -- I can hardly wait until I'm out	.72
8	R	If I had a choice, I wouldn't go to school at all	.63
19	R	School is just a place to keep kids off the street	.62
29	R	It is difficult for me to see my education as a stepping stone to future success	.60
26		School is really worthwhile	-.47
13	R	I often feel rushed and nervous at school	.44

Item No	Reverse Polarity	Item	Primary Loading	Secondary Loading
FACTOR C: PEER-RELATED ATTITUDES				
21		I really like most of the kids at this school	.71	
25	R	Students here are not as friendly as in other schools	-.69	
11		It isn't difficult for a new student to find friends here	.63	
9		There are enough different groups here at school for any type of student to find friends	.62	
30		I enjoy the social life here	.53	
4		This school is a good place for making friends	.52	(D.41)
FACTOR D: STAFF-RELATED ATTITUDES				
15		At this school people really care about me	.71	
18	R	The staff at this school is often impatient	-.59	(A-.42)
2		Students have a voice in determining how this school is run	.49	(A.41)
6	R	At this school there are very few people I can go to when I have a personal problem	-.48	
24		I like school because I learn a lot of new things there	.45	(A.32)
22		The staff at this school seems personally concerned about me	.41	(A.33)
12	R	The staff at this school is usually friendliest with the bright students	-.38	(B.33)
28		Each morning I look forward to coming to school	.37	(B-.33)

SCHOOL OPINION SCALES

EXPERIENCE-BASED CAREER EDUCATION

FAR WEST LABORATORY
FOR EDUCATIONAL RESEARCH AND DEVELOPMENT
[illegible]

Name: ____________________

Date: ____________________

School: ____________________

This survey asks for your opinions about the school/EBCE program that you have been attending during the past school year and for some of your attitudes toward education.

> If you are completing this questionnaire at the beginning of the school year, answer the questions while thinking about your experiences at school last year.
>
> If you are completing this questionnaire in the middle of the school year, answer the questions while thinking about your experiences during the past semester.
>
> If you are completing this questionnaire at the end of the school year, answer the questions while thinking about your experiences this year.

The survey consists of a number of statements. For each statement show the extent to which you agree or disagree by circling one number on the scale:

1........................if you strongly disagree
2........................if you disagree
3........................if you are undecided
4........................if you agree
5........................if you strongly agree

There are no right or wrong answers so respond to each item as honestly as you can. All information will be treated confidentially; your responses will not be associated with your name. Thank you for your time.

(Circle one number on each line)

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1. The staff at this school likes working with young people	1	2	3	4	5
2. Students have a voice in determining how this school is run	1	2	3	4	5
3. School has always been boring -- I can hardly wait until I'm out	1	2	3	4	5
4. This school is a good place for making friends	1	2	3	4	5
5. School is important to me because I find many of the things I learn are useful outside of school	1	2	3	4	5
6. At this school there are very few people I can go to when I have a personal problem	1	2	3	4	5
7. At school I am encouraged to think for myself	1	2	3	4	5
8. If I had a choice, I wouldn't go to school at all	1	2	3	4	5
9. There are enough different groups here at school for any type of student to find friends	1	2	3	4	5
10. At this school I am not allowed to be as creative as I want to be	1	2	3	4	5
11. It isn't difficult for a new student to find friends here	1	2	3	4	5
12. The staff at this school is usually friendliest with the bright students	1	2	3	4	5

(Circle one number on each line)

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
13. I often feel rushed and nervous at school	1	2	3	4	5
14. Some of the ideas I've gotten in school have been so interesting I have followed up on my own	1	2	3	4	5
15. At this school, people really care about me	1	2	3	4	5
16. This school is run like a prison	1	2	3	4	5
17. At this school I have the opportunity to choose assignments which are interesting to me	1	2	3	4	5
18. The staff at this school is often impatient	1	2	3	4	5
19. School is just a place to keep kids off the street	1	2	3	4	5
20. The staff at this school likes what it is doing	1	2	3	4	5
21. I really like most of the kids at this school	1	2	3	4	5
22. The staff at this school seems personally concerned about me	1	2	3	4	5
23. At this school students do not have much choice in what they study	1	2	3	4	5
24. I like school because I learn a lot of new things here	1	2	3	4	5
25. Students here are not as friendly as in other schools	1	2	3	4	5

(Circle one number on each line)

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
26. School is really worthwhile	1	2	3	4	5
27. The staff at this school will accept suggestions from the students	1	2	3	4	5
28. Each morning I look forward to coming to school	1	2	3	4	5
29. It is difficult for me to see my education as a stepping stone to future success	1	2	3	4	5
30. I enjoy the social life here	1	2	3	4	5

INSTRUMENT DESCRIPTION

Name of Instrument: EBCE Perceptions Survey (1978 version)

Developer: Far West Laboratory EBCE Program

Source: EBCE students only.

Purpose: To collect specific impressions of the EBCE program from EBCE students. To assess student opinion about the success of various program activities.

Instrument Type: Questionnaire; multiple-choice, rating scales, and three open-ended questions.

Administration: End of year only. Untimed -- takes approximately 15 minutes.

History: The items have been drawn, with minor revisions, from those used in previous years. Most items were developed by the FWL-EBCE program -- a few were derived from those appearing on the Student Opinion Survey, an instrument that was developed jointly by the four EBCE developer labs in 1973. Item 2 was revised by the Greenhouse staff to make it more appropriate for this program. Item 3 was added by the Greenhouse staff.

Scoring: Most items can be machine processed. The three open-ended items will require coding, descriptive summarization or verbatim transmission, depending on the user's needs..

EBCE PERCEPTIONS SURVEY

EXPERIENCE BASED CAREER EDUCATION
FAR WEST LABORATORY
FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

Name: ______________________________

Date: ______________________________

School: ______________________________

This survey is meant to give you an opportunity to express your opinions about the Experience-Based Career Education (EBCE) Program. The answers from all the students will be used to help determine how well the program is doing now and to improve it in the future. There are no right or wrong answers; your thoughts and feelings are the important things in this survey. Your responses will be treated as strictly confidential. Thank you for your time.

1. If you had it to do over again, do you think that you would participate in the EBCE program?

(Circle one number)

Definitely No ... Definitely Yes

1.........2.........3..........4..........5

Why or why not?

____

____

____

____

____

____

____

2. How well did different parts of the program work? Below is a list of activities in the school program. Please rate each item as to how successful it was in your own experience at the school. If the activity was not part of your program leave the item blank. Otherwise, please circle one number on each line.

Not at all successful for you ... Very successful for you

a. Learning about careers................1......2......3......4......5

b. Visiting resources...................1......2......3......4......5

c. Improving basic skills...............1......2......3......4......5

d. Learning about yourself..............1......2......3......4......5

e. Going to L.C. group meetings.........1......2......3......4......5

f. Planning projects....................1......2......3......4......5

g. Managing your own time...............1......2......3......4......5

h. Carrying out projects................1......2......3......4......5

i. Learning academic subjects...........1......2......3......4......5

j. Individual meetings with L.C.........1......2......3......4......5

k. Evaluating your own work.............1......2......3......4......5

l. Learning to make decisions...........1......2......3......4......5

m. Planning for a future career.........1......2......3......4......5

n. Doing independent study projects.....1......2......3......4......5

o. Logging..............................1......2......3......4......5

p. Individualized P.E. program..........1......2......3......4......5

q. Learning in workshops................1......2......3......4......5

r. Learning through independent study...1......2......3......4......5

s. Learning with L.A.P.s................1......2......3......4......5

t. Learning through external courses....1......2......3......4......5

3. How well did using EBCE forms work for you? Please rate each form as to how successful it was in your own experience at the school.

(Circle one number on each line)

	Not at all successful for you				Very successful for you
Weekly activity schedule	1	2	3	4	5
Project sketch	1	2	3	4	5
Project plan	1	2	3	4	5
Project summary report	1	2	3	4	5

(Circle one number on each line)

	Very little				Very much
4. How much did you like the way of learning (relating study to experience at resource sites) that is used in the EBCE program?	1	2	3	4	5
5. In comparison with your past experiences in regular schools, how motivated were you to learn in the EBCE program?	1	2	3	4	5

6. Is there anything that you would like to have added to the program or taken out of the program?

7. Think back over the past semester and decide on the Resource with whom you spent the most time. Please answer the following questions about this Resource.

a. How much time did you spend at this Resource site?

Less than 5 hours.........1

6-10 hours................2

11-20 hours...............3

21-40 hours...............4

More than 40 hours.........5 (How many?_____)

b. How did you spend your time at this Resource site?

(Circle one number on each line)

	No time	Little time (less than 10%)	Some time (10-25%)	Much time (more than 25%)
Planning project and site activities	1	2	3	4
Talking about jobs and careers	1	2	3	4
Observing site activities	1	2	3	4
Participating in site activities	1	2	3	4
Learning job or career skills	1	2	3	4
Learning academic and other subjects	1	2	3	4
Working on project products	1	2	3	4
Talking about personal interests and issues	1	2	3	4
Other activities (Please specify) ____________________	1	2	3	4

(Circle one number on each line)

Definitely No ... Definitely Yes

8. In general, have the persons at the resource sites you've visited been interested in the EBCE program?.......1......2......3......4......5

9. Have you had enough choice in deciding what to do at resource sites?.................................1......2......3......4......5

10. In general, at resource sites, did you get to actually do things, rather than just watch or listen?................1......2......3......4......5

11. Any other comments on the EBCE program?

____

____

____

____

____

____

____

____

____

____

____

INSTRUMENT DESCRIPTION

Name of Instrument: Parent Opinion Survey 1977

Developer: Far West Laboratory EBCE Program

Source: Parents of EBCE students.

Purpose: To collect parent opinions as to how much the student gained from the EBCE program, how satisfactory were parent contacts with the school, and how well the program was liked by parent and student.

Instrument Type: Mail questionnaire containing rating scales and two open-ended questions.

Administration: Mailed to all EBCE parents near the end of the school year. The survey is administered by Far West Laboratory with questionnaires being returned directly to the Laboratory. The questionnaire should take no more than 20 minutes to complete.

History: The questionnaire consists of items from previous EBCE-developed questionnaires including some items in common with student end-of-year questionnaires.

Scoring: Most items are keypunched directly. The two open-ended questions require coding or summarizing.

EXPERIENCE BASED CAREER EDUCATION
FAR WEST LABORATORY
FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

PARENT OPINION SURVEY 1977

SCHOOL: ______________________________

This questionnaire gives you an opportunity to express your opinions about the Experience-Based Career Education Program (EBCE) in which your son or daughter has been participating. There are no right or wrong answers to the questions; your own opinions will help us to determine how well the program is doing and how to improve it in the future. All responses will be treated confidentially. Thank you for your time.

1. The statements below describe various ways in which the EBCE Program this year may or may not have assisted your son or daughter. Show how you agree or disagree with the following statements:

(circle one number on each line)

	Strongly Disagree	Disagree	Agree	Strongly Agree
a. The school helped in preparing for work	1	2	3	4
b. The school helped in preparing for college	1	2	3	4
c. The school helped in deciding on what to do after high school	1	2	3	4
d. The school helped in self-understanding	1	2	3	4
e. The school helped in getting along better with others	1	2	3	4

2. In your opinion, how much did your son or daughter learn in the EBCE Program this year?

(circle one number on each line)

How much did the student learn in the area of:	Nothing	A Little	Some	A Lot
a. Learning about careers and jobs	1	2	3	4
b. Planning for a career or careers	1	2	3	4
c. Learning job-seeking skills	1	2	3	4
d. Learning how to do a particular job	1	2	3	4
e. Improving reading skills	1	2	3	4
f. Improving writing skills	1	2	3	4
g. Improving math skills	1	2	3	4
h. Improving listening and speaking skills	1	2	3	4
i. Thinking through and solving problems	1	2	3	4
j. Improving skills in working with other students	1	2	3	4
k. Improving skills in working with adults	1	2	3	4
l. Accepting many different ideas and backgrounds of people	1	2	3	4

3. In your opinion, has your son or daughter changed as a result of participation in the EBCE Program? Below are listed several areas where change might occur. Please indicate how you feel your son or daughter may have changed.

(circle one number on each line)

	Much change for the Worse		No Change		Much Change for the Better
a. Interest in school	1	2	3	4	5
b. Motivation to learn	1	2	3	4	5
c. Amount of school work he/she does	1	2	3	4	5
d. Responsibility	1	2	3	4	5
e. Self-confidence	1	2	3	4	5
f. Ability to make decisions	1	2	3	4	5
g. Ability to plan for future	1	2	3	4	5
h. Other (please specify)	1	2	3	4	5

____

____

4. How does the EBCE Program compare with other school programs which your son or daughter has attended?

(circle one number)

Much Worse				Much Better
1	2	3	4	5

5. Compared with previous years how much does your son or daughter talk to you about school experiences?

(circle one number)

Much Less				Much More
1	2	3	4	5

6. What kinds of contacts have you had with the EBCE school staff this year?

(circle one number on each line)

	Never	Once or twice	Three or more times
a. Telephone conversations	1	2	3
b. Individual meetings	1	2	3
c. Group meetings (with other parents)	1	2	3
d. Mailed correspondence-general school information	1	2	3
e. Written reports or correspondence about the performance of your son or daughter	1	2	3
f. Other (please specify)	1	2	3

____

____

(circle one number on each line)

7.	Definitely No				Definitely Yes
a. Do you get all the information you want about your son or daughter's progress and performance in the EBCE Program?	1	2	3	4	5
b. Do you get all the general information you want about the program?	1	2	3	4	5
c. Was the EBCE staff effective in helping your son or daughter plan a learning program suited to his/her needs?	1	2	3	4	5
d. Was the EBCE staff effective in handling any problems that developed with your son or daughter during the school year?	1	2	3	4	5

8. If you had it to do over again, would you want your son or daughter to participate in the EBCE program?

(Circle one number)

Definitely no				Definitely yes
1.........	2.........	3.........	4.........	5

Why?

9. Any other comments about the EBCE Program?

INSTRUMENT DESCRIPTION

Name of Instrument: Resource Opinion Survey 1978

Developer: Far West Laboratory EBCE Program

Source: Community members serving as resource persons or in resource organizations.

Purpose: To collect information on student activities at resource sites, resource perceptions of the effectiveness of program functioning and their degree of satisfaction with the program.

Instrument Type: Mail questionnaire consisting of rating scales, with one multiple-choice and two open-ended questions. It should require no more than 20 minutes to complete.

Administration: Mailed from Far West Laboratory to particpating resources near the end of the school year. Completed questionnaires are returned directly to the Laboratory.

History: Some items date from a common questionnaire used by all EBCE programs in 1973-74. The instrument was redesigned for the 1975-76 evaluation and has since undergone only slight modification.

Scoring: All items can be keypunched directly from the questionnaire except for a final open-ended question.

EXPERIENCE BASED CAREER EDUCATION
FAR WEST LABORATORY
FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

RESOURCE OPINION SURVEY 1978

SCHOOL: ______________________________

During the current school year, you have been participating in a new educational program -- Experience-Based Career Education (EBCE). Your contributions to students as a Resource have helped to make the program possible. Your perceptions of the program will be valuable to the school with whom you are cooperating as well as the the EBCE developers, Far West Laboratory. We will be very appreciative if you will take a few minutes to fill out this questionnaire and return it directly to Far West Laboratory in the enclosed envelope. All information will be treated confidentially; however, it is not necessary to sign your name. Thank you for your cooperation.

1. When did you join the EBCE Program as a Resource?

(Circle one number)

Spring-Summer-Fall 1975..............	1
Winter-Spring 1976....................	2
Summer-Fall 1976......................	3
Winter-Spring 1977....................	4
Summer-Fall 1977......................	5
Winter-Spring 1978....................	6

2. At your site, how many staff persons including yourself have worked with EBCE students during the past year? ________

3. When time contributed by all persons at your site is combined, approximately how many hours per month have been spent by the staff on EBCE activities?

(Circle one number)

One hour or less per month....................................1
2 - 5 hours per month...2
6 - 10 hours per month..3
11 - 15 hours per month.......................................4
16 - 25 hours per month.......................................5
More than 25 hours per month (How many? _____)...............6

4. Has participation in EBCE activities taken more or less time than you originally expected?

(Circle one number)

Definitely Less — Definitely More

1.........2.........3.........4

5. Did you have enough contact with the EBCE staff this year?

(Circle one number)

Definitely No — Definitely Yes

1.........2.........3.........4

6. In general, what did students do at your site? Please circle the number that is the best estimate of the amount of students' time spent in that activity.

(Circle one number on each line)

	No time	Little time (less than 10%)	Some time (10-25%)	Much time (more than 25%)
Planning project and site activities	1	2	3	4
Talking about jobs and careers	1	2	3	4
Observing site activities	1	2	3	4
Participating in site activities	1	2	3	4
Learning job or career skills	1	2	3	4
Learning academic and other subjects	1	2	3	4
Working on project products	1	2	3	4
Talking about personal interests and issues	1	2	3	4
Other activities (Please specify) ____________________	1	2	3	4

7. Did the student activities that took place at your site fit the original understanding you had of EBCE activities?

(Circle one number)

Definitely No			Definitely Yes
1	2	3	4

8. From your own observation, how much do you feel that your site has been able to offer students in the way of learning experiences?

(Circle one number on each line)

How much opportunity did the students have to learn in the area of:	None	Little	Some	A Lot
a. Learning about careers and jobs	1	2	3	4
b. Planning for a career or careers	1	2	3	4
c. Learning job-seeking skills	1	2	3	4
d. Learning how to do a particular job	1	2	3	4
e. Improving reading skills	1	2	3	4
f. Improving writing skills	1	2	3	4
g. Improving math skills	1	2	3	4
h. Improving listening and speaking skills	1	2	3	4
i. Thinking through and solving problems	1	2	3	4
j. Improving skills in working with other students	1	2	3	4
k. Improving skills in working with adults	1	2	3	4
l. Accepting many different ideas and backgrounds of people	1	2	3	4

9. How satisfactory was your interaction with students?

(Circle one number on each line)

	Never satisfactory	Sometimes satisfactory	Usually satisfactory	Always satisfactory
Student interest in site activities	1	2	3	4
Student behavior at the site	1	2	3	4
Student reliability in keeping commitments	1	2	3	4
Student management of time	1	2	3	4
Student responsibility for own decisions	1	2	3	4
Other (please specify)	1	2	3	4

10. How satisfactory was your relationship with the staff of the EBCE program?

(Circle one number on each line)

	Never satisfactory	Sometimes satisfactory	Usually satisfactory	Always satisfactory
Assistance in planning meaningful student activities	1	2	3	4
Assistance with student problems	1	2	3	4
Feedback on students who completed projects	1	2	3	4
Conversation, correspondence, and visits by staff members	1	2	3	4
Other (please specify)	1	2	3	4

11. How important to you are the following reasons for participating as a Resource in the EBCE program?

(Circle one number on each line)

	Not important	Somewhat important	Important	Very important
Giving students new learning experiences	1	2	3	4
Giving students career information	1	2	3	4
Helping students grow and mature	1	2	3	4
Working with professional school staff	1	2	3	4
Participating in a new community program	1	2	3	4
Increasing community awareness of my organization	1	2	3	4
Increasing my understanding of youth	1	2	3	4
Other (please specify)	1	2	3	4

12. In terms of your own experiences--weighing costs, benefits, and other contributing factors--how do you feel about participation in the EBCE program:

(Circle one number on each line)

	Undesirable	Somewhat desirable	Desirable	Very desirable
By you	1	2	3	4
By your organization	1	2	3	4
By students in your community	1	2	3	4

13. Do you plan to continue to participate in the EBCE program?

(Circle one number)

Definitely no			Definitely yes
1..........	2............	3............	4

14. Would you recommend to other organizations or individuals that they become involved in the EBCE program?

(Circle one number)

Definitely no			Definitely yes
1..........	2...........	3...........	4

15. Any comments that you would like to make on the EBCE program and your role as a Resource.

SECTION 2: Description of Other Instruments

INSTRUMENT DESCRIPTION

Name of Instrument: Assessment of Career Development

Developer: American College Testing Program, Houghton-Mifflin Company, Boston

Source: Students -- EBCE and other high school students

Purpose: To obtain information needed in developing effective guidance program tailored to student needs and to assess the outcomes of career guidance programs initiated in special projects and studies. Structured around the following components of career development: occupational awareness, self-awareness, and career planning and decision-making.

Instrument Type: Booklet plus answer sheets. All items in multiple-choice format.

Administration: Total time required is three 45-minute periods or one session of 125 minutes

History*: This instrument was designed and developed specifically for program assessment, as opposed to individual student assessment. It has been carefully developed and tested to provide a wide range of information useful in career education program evaluation. The areas and content covered are quite relevant to many, but not all, of the EBCE program purposes. The Handbook Users Guide and Report of Research is very well prepared, and contains a good discussion of the strengths and limitations of the assessment instrument. One of the best features of the Handbook is an Appendix which is well designed to assist potential users in making judgments about the relevance of the content of the instrument to the purposes of a given program.

The available data indicate that the scores reported are sufficiently reliable for group and program evaluation. Most of them are reliable enough to provide useful information for individual student assessment when used in conjunction with other information available for the students. The national normative data were obtained with care, and would be entirely satisfactory for use in studies requiring comparison of EBCE students with national norms samples. Only cross-sectional growth data are available, and there is only one form of the instrument. Thus, data for any study of growth would have to be interpreted with care.

This instrument merits review and consideration, if funds and student time for information collection are available.

---

*Reprinted from the Instrument description appendix in Watkins, R.W., and C.L. Jenks Values and Information . . . An Approach to Evaluation Planning (Far West Laboratory for Educational Research and Development, 1976).

Scoring: Must be scored by the publisher. Group summary reports are provided for 11 scales and 42 critical questions. Individual student reponses are provided for 11 scales and 19 specific questions.

INSTRUMENT DESCRIPTION

Name of Instrument: The SRA Survival Skills Test in Reading and Mathematics

Developer: Science Research Associates, Inc. (259 East Erie Street, Chicago, Illinois 60611)

Source: EBCE and other high school students

Purpose: A criterion-referenced test to help identify skill weaknesses and to determine the level of mastery of important concrete skills that will be needed in adult life.

Instrument Type: Booklet plus answer sheets. All items are in multiple-choice format.

Administration: Untimed but takes approximately one hour for each test (reading or mathematics).

History: The test is part of the SRA criterion-referenced measurement program and was not designed for program evaluation. Items are designed to measure individuals ability to cope with "real-world" challenges.

Scoring: Can be hand or machine scored.

INSTRUMENT DESCRIPTION

Name of Instrument: Student Attitude Survey

Developer: Research for Better Schools, Inc. (1700 Market Street, Philadelphia, PA 19103)

Source: EBCE and other high school students.

Purpose: To collect information on student attitudes toward school and their learning program, toward careers, and toward self and others.

Instrument Type: Rating scales; 80 items on consumable test sheet.

Administration: Untimed -- requires about 15-20 minutes.

History: See RBS documents. Developed to provide means of assessing attitudes of students in both experimental and conventional programs.

Scoring: Machine-scored by the developer.

SECTION 3: EBCE School Forms Used in the Evaluation

Experience-Based Career Education

ORAL COMMUNICATIONS RATING

STUDENT

STUDENT ACTION	OBSERVER'S NAME *(EBCE staff or RP)*	DATE	VERIFIED BY *(LC)*
1. *The student successfully transacted business on the telephone, e.g., made an appointment with a resource stating his/her name, purpose for calling, and areas of interest (Maximum: 3 points)*			
2. *The student clearly explained to a resource what he/she wanted to learn at the site. (Maximum: 2 points)*			
3. *The student answered questions about his/her learning activities, explaining what he/she was doing and why, to your satisfaction. (Maximum: 2 points)*			
4. *The student successfully followed complex verbal directions (more than one item or step was involved). (Maximum: 2 points)*			
5. *The student helped another student by giving him/her clear verbal directions. (Maximum: 2 points)*			
6. *When asking for help from a staff member or a resource, the student effectively stated the problem confronting him/her. (Maximum: 2 points)*			
7. *The student made a formal presentation which communicated information, ideas, and informed opinion to a group of at least three students and staff. (Maximum: 2 points)*	*Type of Group:* *Type of Group:*		

Please comment on the student's overall ability to communicate orally

NOTE: 10 POINTS ARE REQUIRED TO SATISFY THE ORAL COMMUNICATIONS REQUIREMENT. TOTAL POSSIBLE POINTS = 15

I certify that the student has met the oral communications requirement for EBCE.

LC DATE TOTAL POINTS

Distribution: Original (White) - LC/files; Yellow - Student; Pink - permanent file

FWL-EBCE Rev.1/76

Experience-Based Career Education

WRITING SCALE

WRITING SKILL	Consistently	Frequently	Occasionally	Never or Almost Never	Rating Points*	Area(s) in which additional work would help the student overcome writing deficiencies. (Check appropriate items)
1. Is the student able to organize and present ideas clearly?						[ ] Paragraphs [ ] Logical Development of Ideas [ ] Use of Specific Detail [ ] Other __________
2. Does the student structure sentences correctly?						[ ] Word Order [ ] Phrases [ ] Clauses [ ] Sentence Completion [ ] Other __________
3. Does the student use grammar and vocabulary correctly?						[ ] Verbs [ ] Pronouns [ ] Possessives [ ] Adjectives [ ] Plurals [ ] Word Choice [ ] Other __________
4. Does the student use punctuation correctly and spell accurately?						[ ] Capitalization [ ] Periods [ ] Commas [ ] Spelling [ ] Other __________
A score of 8 on an essay written under controlled conditions or on three consecutive written projects satisfies the EBCE writing requirement. SCORE						ITEM RATED: [ ] Essay (controlled test) [ ] Journal [ ] Project Report [ ] Letter [ ] Other __________

Please comment on the student's overall ability to communicate in writing: ____________________

*CRITERIA	RATING
Consistently (90% of work is acceptable)	*1*
Frequently (50% or more of work is acceptable)	*2*
Occasionally (Less than 50% of work is acceptable)	*1*
Never or Almost Never (10% or less is acceptable)	*0*

EVALUATOR'S SIGNATURE ________________ DATE ________

STUDENT ____________________

I certify that the student has met the writing skills requirement for EBCE.

LC ____________________ DATE ________

Distribution: Original (White) - LC/Files; Yellow - Student; Pink - permanent file; Goldenrod - Skills Specialist

FWL-EBCE Rev.1/76

Experience-Based Career Education	CAREER DECISION-MAKING QUESTIONNAIRE

STUDENT

LC

DATE

Please answer the following questions to the best of your ability. Use additional pages if necessary.

1. What decisions about your immediate future do you still need to make and when should you make them?

2. What do you plan to do after leaving high school?

3. What options did you consider when making these plans?

4. Why did you choose this particular course of action?

5. What career fields have you considered entering?

CAREER DECISION-MAKING QUESTIONNAIRE (Continued)

6. Have you selected a particular career or careers to prepare yourself for? Which one(s)?

7. Why do you believe that this is the best choice for you? How does the career(s) relate to your values, abilities, or other goals?

8. What do you plan to do if your interests change or you are unable to enter your chosen career?

9. If you have not made any plans, what kinds of information do you need about yourself and the possible things you might do after high school to make informed decisions about your immediate future?

10. Where and how will you obtain that information?

FWL-EBCE Rev.1/76

Experience-Based Career Education	CAREER DECISION-MAKING RATING

STUDENT ____

The Learning Coordinator completes this form before the student's last term in the program, based on: the student's oral or written responses to the Career Decision-Making Questionnaire and a review of his Career Orientation Guides, Job Information Questionnaires, and all project products that demonstrate his/her knowledge or use of career decision-making skills. The student must receive a yes rating on items 1 through 8 or 2 through 9 to meet the EBCE career decision-making requirement.

	YES	NO
1. Can the student state his/her career plans for the coming year, including any plans for additional education or training?	☐	☐
2. Does the student recognize career-related decisions that need to be made?	☐	☐
3. Has the student examined career options in terms of his/her values and preferred lifestyle?	☐	☐
• Does he/she know what his/her current values are? What he/she cares most about?	☐	☐
• Does he/she know whether the careers he/she is considering will help or make it more difficult for him/her to be the kind of person and live the kind of life he/she wants?	☐	☐
4. Does the student possess sufficient information about the options he/she is considering to make informed decisions?	☐	☐
• If not, what kind of information does he/she still need to acquire? *(Check when information is acquired)*	☐	☐
______________________________	☐	☐
______________________________	☐	☐
______________________________ 5. Has the student examined his/her abilities in relation to the alternatives he/she is considering?	☐	☐
• Does he/she know what he/she will have to do to prepare himself/herself to meet entry requirements and to succeed in his/her chosen endeavor?	☐	☐

Distribution: Original (White) - LC/files; Yellow - Student; Pink - permanent file

FWL-EBCE Rev.1/76

CAREER DECISION-MAKING RATING (Continued)

	YES	NO
6. Has the student anticipated possible barriers or obstacles such as cost, competition, availability of positions?		
7. Does the student have any contingency plans should his/her interests change or barriers arise which prevent him/her from entering his/her chosen career?		
8. Does the student know how to make an informed decision, including the steps listed below or their equivalent? • Determine the importance of the decision. (The possible effects of deciding, not deciding, or postponing a decision.)		
• Identify possible alternative actions; consider as many options as possible.		
• Predict the possibility and probability of outcomes for each action.		
• Identify criteria (values) for determining which outcomes are most desirable.		
• Evaluate outcomes and options in terms of desirability and feasibility.		
9. If the student does not have well-formulated career plans, can he/she identify the kinds of information he/she needs to acquire about himself/herself and his/her options before making decisions about his/her immediate future?		
• Does he/she have realistic plans for acquiring this information?		

I certify that the student has met the EBCE career decision-making requirement.

LC ______________________________ DATE ____________________

Distribution: Original (White) - LC/files; Yellow - Student; Pink - permanent file

FWL-EBCE Rev.1/76